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Revision 2A

Hanford Site Chronic Beryllium Disease Prevention Program (CBDPP)

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NOTE

This Program document references the Site Occupational Medical Director (SOMD), and the Site Occupational Medical Contractor (SOMC), because they provide the services for the majority of Hanford Site contractors. However, in the case of a contract that allows another qualified medical provider to perform these services, then the references also apply to that provider of equivalent services.

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ACRONYM LIST

ACGIH	American Conference of Governmental Industrial Hygienists
AIHA	American Industrial Hygiene Association
AJHA	Automated job hazard analysis
APR	Air purifying respirator
BAG	Beryllium Awareness Group
BCA	Beryllium controlled area
BCF	Beryllium controlled facility
BeS	Beryllium sensitization
BHA	Beryllium hazard assessment
BMA	Beryllium material area
BRA	Beryllium regulated area
BSA	Beryllium suspect area
BWP	Beryllium work permit
CAM	Continuous air monitor
CBD	Chronic beryllium disease
CBDPP	Chronic Beryllium Disease Prevention Program
CFR	Code of Federal Regulations
CIH	Certified industrial hygienist
CWB&CTC	Central Washington Building and Construction Trades Council
DOE	United States Department of Energy
DOE-ORP	U.S. Department of Energy-Office of River Protection
DOE-RL	U.S. Department of Energy-Richland Operations Office
EDE	Electrical distribution equipment
EEOICPA	Energy Employee Occupational Illness Compensation Program Act
EJTA	Employee Job Task Analysis
ERDF	Environmental Restoration Disposal Facility
HAB	Hanford Advisory Board
HAMMER	The Volpentest HAMMER Training & Education Center
HAMTC	Hanford Atomic Metal Trades Council
HEPA	High Efficiency Particulate Air
HGET	Hanford General Employee Training
IH	Industrial hygienist
IHT	Industrial hygiene technician
JHA	Job hazard analysis
JSA	Job safety analysis

LOQ	Level of qualification
MSC	Mission Support Contract
NEA	Negative exposure assessment
ORP	U.S. Department of Energy-Office of River Protection
OSHA	Occupational Safety and Health Administration
PAPR	Powered air purifying respirator
PEL	Permissible exposure limit
PPE	Personal protective equipment
PRC	Plateau Remediation Contract
RCC	River Corridor Contract
RDL	Reporting detection limit
RL	U.S. Department of Energy-Richland Operations Office
SAT	Systematic approach to training
SOMC	Site Occupational Medical Contractor
SOMD	Site Occupational Medical Director
TCV	Test critical value
TE	Technical evaluation
TLV	Threshold limit value
TOC	Tank Operation Contract
TWA	Time-weighted average
UBA	Underground beryllium area
UTL	Upper tolerance limit
WIDS	Waste Information Data System

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1.0 PURPOSE

This document establishes an integrated Hanford Site Chronic Beryllium Disease Prevention Program (CBDPP) and supporting procedures, herein called the Program, that implement controls necessary to minimize the exposure to beryllium of employees working at Hanford. The Hanford CBDPP represents a best in class program.

This Program implements employer requirements for Hanford found in 10 Code of Federal Regulations 850 (10 CFR 850). This Program also provides consistent employer implementation practices for 10 CFR 850 requirements across the Hanford Site.

2.0 SCOPE

This Program applies to Hanford contractors who are responsible for facilities where beryllium activities may have previously been conducted and to any current activities that involve actual or potential exposures to airborne and/or surface beryllium contamination. It does not apply to beryllium articles as defined in Section 3.0. This Program has limited application to current or future laboratory or laboratory-scale operations (as defined by the Occupational Safety and Health Administration [OSHA]) involving beryllium that are subject to the requirements of 29 CFR 1910.1450, Occupational Exposure to Hazardous Chemicals in Laboratories. The Program covers Hanford workers who have previously been exposed or currently have the potential for exposure to beryllium while working at Department of Energy (DOE) sites. Through supporting procedures this Program establishes a consistent approach to identifying, determining and implementing controls for all job activities in areas controlled for beryllium.

3.0 DEFINITIONS

Action Level: The airborne concentration of beryllium is 0.1 µg/m^3, calculated as an 8 hour time-weighted average (TWA) exposure, as measured in the workers' breathing zone by personal monitoring.

Anthropogenic Beryllium: Beryllium and beryllium alloys created through artificial activities. The most common forms are beryllium, beryllium oxide, and copper beryllium alloys.

Background Beryllium Level: The background beryllium level in soil is established as 2.0 ppm (2 µg/gm) per DOE Richland Operations Office (DOE-RL) Memorandum 00-ESD-116.

Beryllium: Elemental beryllium and any insoluble beryllium compound or alloy containing 0.1 percent beryllium or greater that may be released as an airborne particulate.

Beryllium Activity: An activity taken for, or by, DOE at a DOE facility, that can expose workers to airborne beryllium, including but not limited to design, construction, operation, maintenance, or decommissioning, and which may involve one DOE facility or operation or a combination of facilities and operations.

Beryllium Article: A manufactured item that is formed to a specific shape or design during manufacture that has end-use functions that depend, in whole or in part, on its shape or design

during end-use and that does not release beryllium or otherwise result in exposure to airborne concentrations of beryllium under normal conditions of use.

Beryllium-Affected Worker: A worker affected medically by beryllium exposure, e.g., beryllium sensitization, chronic beryllium disease (CBD) or a medical condition otherwise associated with beryllium exposure.

Beryllium-Associated Worker: A current worker who is (or was) exposed, or potentially exposed to airborne concentrations of beryllium at a DOE facility, including:

- A beryllium worker
- A current worker whose work history shows that the worker may have been exposed to airborne concentrations of beryllium at a DOE facility
- A current worker who exhibits signs or symptoms of beryllium exposure
- A current worker who is receiving medical removal protection benefits

Beryllium-Contaminated Material: Material with removable surface beryllium at greater than 0.2 μg/100 cm^2, after decontamination or cleaning, when characterized by wipe sampling methods, or at levels that exceed the background beryllium level when characterized by bulk sampling methods.

Beryllium-Controlled Area (BCA): An accessible area where removable surface beryllium levels are at or above the Control Level. A BCA can be an entire building, room, system, or a geographic area.

Beryllium-Controlled Facility (BCF): An existing facility where:

- Beryllium activities are ongoing
- Beryllium activities may have occurred in the past
- Beryllium surface contamination has been confirmed
- DOE-0342-003 requires posting as a BCF

A beryllium-controlled facility may be decontaminated and classified as a Beryllium-Cleared Facility through adequate characterization sampling.

Beryllium-Cleared Facility: An existing facility where the potential for beryllium surface contamination above the Control Level is unlikely to exist. This is determined through characterization sampling and/or process knowledge. Facility may be an entire building or a geographic area.

Beryllium-Historical Facility: A facility that no longer exists and where beryllium activities are known or assumed to have occurred. A facility may be an entire building or a geographic area.

Beryllium Material Area (BMA): An area which has been established for the sole purpose of storing items or equipment removed from a BCA/BRA and awaiting sampling results.

Beryllium-Regulated Area (BRA): Means an area demarcated by the responsible employer in which the airborne concentration of beryllium exceeds, or can reasonably be expected to exceed, the Action Level.

Beryllium Suspect Area (BSA): An area which has:

- Been identified per a Hanford Site Facility Assessment form as an area/item of concern when the area has historical (knowledge and/or sampling) data which indicates no beryllium use and/or contamination and/or,
- Only partial characterization has been completed per the appropriate Hanford Site Characterization procedure

BSA can be an entire building, room, system, or a geographic area.

Beryllium Work Permit (BWP): A written set of controls and work practices required for work in a beryllium-controlled area or beryllium-regulated area.

Beryllium Worker: A current worker who is regularly employed in a DOE beryllium activity.

Breathing Zone: An area described by a hemisphere forward of the shoulders, centered on the mouth and nose, with a radius of 6 inches to 9 inches.

Bulk Sample: A weight-by-weight (micrograms per gram or part per million) determination of beryllium content in a bulk material such as soil or dust.

CBDPP Committee: The entity that is chartered to develop processes for the administration, training, implementation, and approval of the Hanford Site Chronic Beryllium Disease Prevention Program (CBDPP). (Attachment 1 is the *CBDPP Committee Charter*.)

Certified Industrial Hygienist (CIH): A health and safety professional certified by the American Board of Industrial Hygiene.

Control Level: The surface contamination concentration that requires the control of an area as a Beryllium Controlled Area (BCA). The Control Level for wipe samples is 0.2 µg/100 cm^2. The Control Level for bulk samples is 2 µg/g.

Demolished Beryllium Facility Site: A site where a Beryllium Controlled Facility is in progress of being and/or has been demolished and characterization sampling per the appropriate Hanford Site procedure has not been completed.

De-posting: When an area and/or facility no longer requires beryllium posting because the area and/or facility has been determined to be beryllium cleared through full characterization, unless otherwise noted in DOE-0342-003, *Hanford Site Beryllium Posting and Labeling Requirements Procedure.*

Dormant Waste Information Data System (WIDS) sites: Inactive WIDS sites that are outdoor areas and all of the following apply:

- All exposure sources are sub-surface (at least 6 inches below the surface)
- The area is only entered for surveillance activities and/or to correct deficiencies identified during a surveillance. The correction of the deficiencies shall not expose sub-surface beryllium sources.

Down-posting: When the status of an area still requires beryllium controls but at a lesser level than the current posting requirements.

DOE Field Elements: Department of Energy, Richland Operations Office (RL), and Office of River Protection (ORP).

Dust-Producing Activity: Any activity resulting in the production of airborne particulates.

Electrical Distribution Equipment (EDE): Electrical equipment such as Motor Control Centers, panel boards, switchgear, transfer switches, and circuit breaker panels. It does not include wiring, outlets, and power switches.

Facility: For the purpose of this document and associated procedures, a facility applies to buildings, structures, conex boxes, or outside areas.

Facility Characterization: A statistically based sampling process to obtain a sufficient number of samples to adequately characterize a facility before classification.

Hanford Site Contractors/Employers:

Mission Support Contract (MSC)

Plateau Remediation Contract (PRC)

River Corridor Contract (RCC)

Tank Operation Contract (TOC)

Site Occupational Medical Contract (SOMC)

Hygiene Facility: Areas such as change rooms, shower and hand washing facilities that are designed to prevent the migration of beryllium by workers.

Internal Beryllium Contamination: Enclosed systems or equipment with inaccessible internal surfaces with suspected or known beryllium contamination. In general, the external surfaces of these items are below the release limit of 0.2 μg/100 cm^2, or 2 ppm, but represent a potential hazard for workers unknowingly disturbing the internal surfaces.

Intrusive Activity: An intrusive activity consists of any of the following processes:

- Altering or modifying an area, room, work area, and/or building structure including the complete or partial removal of items/equipment/systems where an inaccessible area or surface is being exposed. Activities include but are not limited to cutting, drilling, sanding and grinding.
- Breaching/opening an item/equipment/system for the purpose of performing hands-on work. Examples include monitoring equipment, instrumentation, tool boxes, ventilation ducting or piping where suspect/confirmed beryllium contamination has been identified. This includes complete or partial dismantlement.
- Opening/breaching electrical distribution equipment for repair/maintenance activities when controlled for potential or confirmed internal beryllium contamination. Activities include removal/replacement of units/components, air gapping, hands-on troubleshooting and cleaning. The act of conducting visual inspections and/or safe to work/condition checks is not considered to be an intrusive activity.
- Opening/breaching machinery such as panels or components not normally accessed for operation and/or motors/engines considered to be potentially or internally contaminated. If there is the potential for contamination within one of these systems, such as air intake,

hands-on work performed on outside of the components/systems or the closed system, is not considered to be intrusive.

Intrusive activities in beryllium areas and labeled equipment or systems normally require the controls of a Beryllium Work Permit. A BWP is not required, however, when sampling results supports not requiring beryllium qualified workers.

Investigative Level (Affected Workers): The airborne concentration that requires additional investigation per Section 6.14 resulting from the sampling of the affected workers (including representative sampling and/or area sampling of an affected worker's work location). This investigative level is 0.02 $\mu g/m^3$, calculated as an 8 hour time-weighted average (TWA) exposure.

Investigative Level (Area Monitoring): The airborne concentration that requires additional investigation per Section 6.11.4.5 resulting from boundary area sampling. This investigative level is 0.02 $\mu g/m^3$, calculated as a measured concentration.

Location of Concern: A specific location within a survey unit that is identified during employee interviews as being potentially beryllium contaminated. All locations of concern shall be sampled.

Negative Exposure Assessment: A statistically based monitoring review process to adequately characterize exposure as below the Action Level (i.e., AIHA, *A Strategy for Occupational Exposure Assessment*).

Non-Intrusive Work: Tasks having no potential for disrupting or altering a system, equipment, or facility.

Permissible Exposure Limit (PEL): The PEL is defined by OSHA standards in 29 CFR 1910.1000. The current OSHA PEL for beryllium is 2 $\mu g/m^3$ as an 8-hour time-weighted average, with a ceiling of 5 $\mu g/m^3$ and an acceptable peak of 25 $\mu g/m^3$ for 30 minutes.

Release Criteria: The level of removable contamination for surfaces of equipment or items is less than 0.2 $\mu g/100\ cm^2$ for wipe samples, or the background level for bulk samples.

Restricted Access Area: An area that is being controlled pending the completion of investigative sampling due to results above the Trigger Level. A Restricted Access Area can be an entire building, room, system, or a geographic area.

Site Occupational Medical Director (SOMD): The physician responsible for the overall direction and operation of the site occupational medicine program at the Hanford Site. (Attachment 4 is the Hanford SOMC Beryllium Medical Support Plan.)

Test Critical Value (TCV): The highest sample value for a group of samples collected in a survey unit. The TCV determines the minimum number of samples required for a standard survey unit.

Time-Weighted Average (TWA): The average exposure, regardless of personal protective equipment, to a chemical based upon the concentration of the chemical, times the duration of exposure, divided by the entire duration of the work shift. Unless specified otherwise, the duration of the work shift is 8 hours.

Trigger Level: The surface contamination concentration that triggers additional sampling to determine if surface contamination may exceed the Control Level. The trigger level for wipe samples is 0.1 µg/100 cm^2. The trigger level for bulk samples is 1 µg/g.

Underground Beryllium Area (UBA): An underground area where a suspect or known beryllium contamination source exists. Examples of such sources include underground piping systems, tanks, or where known beryllium contamination has been washed into the ground.

Up-posting: When the status of an area requires a higher level of control than the current posting requirements.

Worker Exposure: The exposure of a worker to airborne beryllium that would occur if the worker were not using respiratory protective equipment. (Note: Skin contamination can be an additional pathway for exposure.)

4.0 ENFORCEMENT

DOE may take appropriate steps pursuant to 10 CFR 851 to enforce compliance by contractors with 10 CFR 850 and any DOE-approved CBDPP and supporting procedures.

5.0 RESPONSIBILITIES

Hanford Site Contractors: Shall develop management systems necessary to implement the Hanford Site CBDPP and provide support to Company level CBDPP Lower Tier Committees.

CBDPP Committee: Shall be the collective interpretive authority for the Hanford Site CBDPP, as per the Charter (Attachment 1, *Hanford Site Chronic Beryllium Disease Prevention Program [CBDPP] Committee Charter*). Shall coordinate outreach efforts to former workers in accordance with Appendix B, *Outreach to Former Workers on Beryllium Issues*.

6.0 REQUIREMENTS

The contractual documents that provide the requirements in this Program are 10 Code of Federal Regulations, Part 850, Chronic Beryllium Disease Prevention Program, and 10 Code of Federal Regulations, Part 851, Worker Safety & Health Program. Existing program procedures that comply with these requirements are referenced, as applicable.

6.1 Dispute Resolution

Employees who have concerns regarding the Hanford Site CBDPP are encouraged to use Company level CBDPP Lower Tier Committees and/or existing Hanford programs and processes for resolving such concerns. The CBDPP Committee shall be involved as a technical resource for disputes involving the interpretation or implementation of the CBDPP. The CBDPP Charter (Attachment 1, *Hanford Site Chronic Beryllium Disease Prevention Program [CBDPP] Committee Charter*) provides additional guidance for using the Committee and Company level CBDPP Lower Tier Committee's assistance in resolving disputes.

6.2 Program Review and Submittal

The MSC contractor shall facilitate an annual update of the CBDPP, working with the CBDPP Committee. Any significant change to this Program must be submitted to the Hanford DOE Field Elements for review and approval prior to implementation. If no response is received from the DOE within 90 days, the submitted change will be considered approved. The MSC shall provide notice of changes to this Program to the Hanford Atomic Metal Trades Council (HAMTC), the Central Washington Building and Construction Trades Council (CWB&CTC) and any other affected bargaining unit. Any bargaining unit issues concerning the implementation of the CBDPP will be addressed in accordance with current labor agreements.

6.3 General Requirements

This program contains/requires:

Well defined assessment, characterization and posting requirements

Integration of CBDPP elements into existing programs for safety, health, training, medical, counseling and work planning

Minimization of skin contact with beryllium-contaminated surfaces

Minimization of the spread of beryllium surface contamination

Minimization of the number of workers exposed to beryllium through job specific hazard assessments and Beryllium Work Permits (BWPs), work planning, and engineering controls

Established airborne exposure and surface contamination reduction and minimization goals below the Action, Control and Trigger Levels that would be applicable to the specific task

Reduction of exposure by applying engineering controls, whenever feasible, as well as using administrative control measures and Personal Protective Equipment (PPE)

This Program integrates standards for the protection of workers and the environment from beryllium into existing work control processes.

6.4 Implementation

Each Site contractor is responsible for the implementation of the Program and control of beryllium exposures for all activities within their contract scope that are specified in the scope of the Program (Section 2.0).

6.5 Compliance

Each Site contractor must conduct beryllium activities in compliance with this CBDPP as approved by the DOE Field Elements.

6.6 Baseline Inventory

The Hanford Site baseline inventory is maintained by the Mission Support Contract (MSC). The MSC shall ensure that a qualified individual (e.g., a Certified Industrial Hygienist) is responsible for overseeing the maintenance of the baseline inventory. Site contractors shall communicate facility status changes to the MSC within 30 calendar days. This inventory shall include:

- Beryllium-controlled facilities
- Former beryllium-controlled facilities that have been decontaminated
- Facilities that no longer exist and where beryllium activities are known or assumed to have occurred
- Outdoor areas where beryllium contamination is identified

The inventory will be maintained on a Web site accessible to all employees, current and former, and will be updated within 30 calendar days of receiving notification of a facility status change. All Site contractors shall provide to the MSC the information necessary to establish and maintain the baseline inventory for facilities covered under their scopes of work.

6.6.1 Facility Characterization Process

An initial assessment of all facilities is required to determine the beryllium status of the facility. DOE-0342-002 *Hanford Site Wide Assessment & Characterization/Verification of Buildings Procedure* documents the procedure for conducting assessments, characterization sampling, and/or verification sampling of buildings. Based on the results of the assessment of the building, either characterization sampling or verification sampling will be required.

DOE-0342-004 *Hanford Site Wide Assessment & Characterization/Verification of Structures and Conex Boxes Procedure* documents the procedure for conducting assessments, characterization sampling, and/or verification sampling of structures and Conex boxes. Based on the results of the assessment of the structure or Conex box, characterization sampling and/or verification sampling may be required.

6.6.2 Evaluation of Electrical Equipment for Beryllium

Beryllium is known to have been used in certain electrical components. DOE-0342-005 *Hanford Site Evaluation of Electrical Equipment for Beryllium Procedure* documents the process for evaluating electrical equipment to determine whether it has the potential to have removable beryllium surface contamination due to beryllium containing components. The results of the evaluation of electrical equipment shall be documented on the appropriate Beryllium Facility Assessment Form in accordance with either DOE-0342-002 *Hanford Site Wide Assessment & Characterization/Verification of Buildings Procedure* or DOE-0342-004 *Hanford Site Wide Assessment & Characterization/Verification of Structures and Conex Boxes Procedure*.

6.7 Hazard Assessment and Beryllium Work Permit

As a part of the work control process, a complete and accurate Beryllium Hazard Assessment Form is required for the proper implementation and success of the Hanford Job Specific Beryllium Work Permit.

The Hazard Assessment and Beryllium Work Permit shall be completed, documented and used per Hanford Site Procedure, DOE-0342-001.

6.7.1 *SECTION REMOVED PER RESOLUTION FORM*

6.7.2 Associating Radiological Contamination with Beryllium

In operations where beryllium and radiologic materials are present with one another, a Technical Evaluation (TE) may be developed to correlate the concentration of beryllium with radioactivity. The Technical Evaluation shall document the assumptions, limitations, and calculations used to determine the bounding values for the radiological contamination.

The Technical evaluation shall meet the requirements of Appendix E: *Assessing, Documenting, and Reporting Beryllium Exposures Associated With Radioactivity*.

6.8 Requirements for Control of Beryllium Work

Each prime contractor shall maintain a work control process and implementing procedure(s) capable of anticipating and evaluating work activities for beryllium hazards, recognizing when and where beryllium hazards exist, and determining appropriate beryllium controls.

Work planning, evaluations and controls for beryllium work activities shall meet the requirements of Appendix F: *Requirements for Conducting Beryllium Work.*

6.9 Permissible Exposure Limit

Hanford Site contractors shall comply with the Occupational Safety and Health Administration Permissible Exposure Limit (OSHA PEL), or the 2005 American Conference of Governmental Industrial Hygienists Threshold Limit Values (ACGIH TLV), whichever is more conservative.

6.10 Hanford Site Action Level

The Action Level for employees is 0.1 $\mu g/m^3$ as an 8 hour TWA, as further defined within the definition section of this document.

6.11 Exposure Monitoring

The exposure monitoring provisions in this section are necessary to determine the extent of exposure at the work site; prevent worker overexposure; identify the sources of exposure to beryllium; collect exposure data so that the responsible employer can select the proper control methods to be used; evaluate the effectiveness of selected controls; and provide continual feedback on the effectiveness of the program in controlling exposures.

Because the 2009 ACGIH TLV for beryllium refers to inhalable particulates, contractors are encouraged to include both total beryllium and inhalable beryllium sampling in their sampling plans whenever measurable levels of airborne beryllium are expected. A summary of the data will be provided to the Committee upon request.

6.11.1 Initial Personal/Area Air Monitoring

Personal monitoring for airborne beryllium using breathing zone air samplers shall be conducted at the beginning the first day of work at all work sites where there is a potential airborne exposure to beryllium above the Action Level (0.1 $\mu g/m^3$) and continue per the sampling plan in the BWP. A beryllium worker may request and shall be provided with personal monitoring during any beryllium work activity.

Area air monitoring can be conducted to further characterize exposure pathways as specified by the Project IH. This includes sampling at the boundaries where beryllium work is conducted and may require sampling at locations that are immediately downwind or closest to the potential beryllium generation sources. Area and boundary sampling will be specified in the applicable sampling plan or BWP.

6.11.2 Negative Exposure Assessment

Negative Exposure Assessments (NEA) may be used to reduce the number or frequency of personal samples required and reduce exposure controls, such as downgrading respiratory protection. A negative exposure assessment must meet the following criteria:

- The personal monitoring data must be statistically significant and representative of the work being conducted. In addition, the monitoring and analysis must have been conducted in accordance with Section 6.11.7 of this Program
- The personal monitoring data were obtained during work operations closely resembling the current operation, the state of the beryllium contamination, control methods, work practices, and environmental conditions prevailing in the current operations
- The operations were conducted by employees whose training and experience are no more extensive than that of employees performing the current work
- The personal monitoring data must demonstrate a high degree of certainty (95 percent confidence level) that employee exposure during the current job will not exceed the Action Level
- Personal sampling must be restarted if there is any change on the job site that could result in potential increased exposure (i.e., reduction in ventilation, drying of surfaces when using wet methods, or other modification in controls at the work site, etc.)
- The negative exposure assessment shall be documented

6.11.3 Surface Sampling

Surface sampling (wipe sampling or bulk sampling) will be conducted in beryllium-controlled areas prior to performing dust producing or intrusive activities unless contractors choose to control the area as a beryllium-regulated area. Beryllium-Clean Facilities do not require surface sampling prior to intrusive work or dust producing activities. The Project Industrial Hygienist (IH) may request surface sampling to verify the absence of beryllium contamination.

6.11.4 Periodic Personal Air Monitoring

Once initial monitoring is completed, periodic air monitoring will be performed to ensure work practices and controls are adequate to prevent airborne exposures at or above the Action Level. Requirements for periodic personal air monitoring will be summarized on the beryllium hazard assessment form in accordance with DOE-0342-001, *Hanford Site Wide Beryllium Work Permit (BWP) and Hazard Assessment Procedure*.

If work is in an area where exposure levels are at or above the Action Level, periodic monitoring must be repeated at least every 3 months. Additional sampling may be requested by employees.

6.11.4.1 Preparation for Air Monitoring

The following applies to air monitoring conducted in accordance with Sections 6.11.4.2, 6.11.4.3, and 6.11.4.4. In preparation for sampling the IH/industrial hygiene technician (IHT) shall discuss the expected work duration with the work team. The type of sampling pumps used shall have a sufficient flow rate to ensure that collected air volume is adequate to provide a reporting detection limit of less than 0.02 $\mu g/m^3$ given the expected duration of the work activity.

During placement of the sampling pumps, consideration will be given to the prevailing wind flow or air flow path. At least one pump shall be placed such that it is located downstream from the work location.

6.11.4.2 Air Monitoring of Demolition Sites

Area samples will be collected on a daily basis during the demolition and load out of Beryllium Controlled Facilities. A minimum of one sample will be collected on each side of the perimeter of the controlled area (for areas equal to or greater than 100 ft^2). For controlled areas less than 100 ft^2, a total of two samples shall be collected. The area sampling requirements shall be documented in Section 6.0 of the Beryllium Hazard Assessment form (A-6005-852) for the work being conducted.

While it is preferred to capture sufficient air volume during the work activity, sampling pumps may be allowed to run after the completion of short duration work activities if additional run time is needed to collect the appropriate air volume. In such cases the actual length of demolition activities shall be documented on the air survey form.

6.11.4.3 Air Monitoring of BCA/BRAs With Rope Boundaries

Area samples will be collected on a daily basis during intrusive activities for BCA/BRAs that have rope boundaries. For areas equal to or greater than 100 ft^2, a minimum of one sample will be collected on each clean side of the rope boundary. A maximum of four samples would be required if the entire perimeter has a rope boundary. If one of the sides with rope boundaries also has a step off pad, only one sample is required on that side. For areas less than 100 ft^2, one sample is required. The area sampling requirements shall be documented in Section 6.0 of the Beryllium Hazard Assessment form (A-6005-852) for the work being conducted.

While it is preferred to capture sufficient air volume during the work activity, sampling pumps may be allowed to run after the completion of short duration work activities if

additional run time is needed to collect the appropriate air volume. In such cases the actual length of intrusive activities shall be documented on the air survey form.

NOTE: *The definition of "rope boundary" includes plastic chains, caution tape and other methods to define a boundary that don't provide a physical barrier.*

6.11.4.4 Air Monitoring of Step Off Pads

Area samples will be collected on a daily basis at the step off pad during intrusive activities in a BRA. The project IH shall determine if collecting area samples at the step off pad is appropriate during intrusive activities in a BCA. The area sampling requirements shall be documented in Section 6.0 of the Beryllium Hazard Assessment form (A-6005-852) for the work being conducted.

While it is preferred to capture sufficient air volume during the work activity, sampling pumps may be allowed to run allowed to run after the completion of short duration work activities if additional run time is needed to collect the appropriate air volume. In such cases the actual length of intrusive activities shall be documented on the air survey form.

6.11.4.5 Analysis of Area Sampling Data

The following applies to sampling data collected in accordance with Sections 6.11.4.2, 6.11.4.3, and 6.11.4.4.

Once the area sampling results are available, determine which of the following three cases apply:

Case 1 – All samples are below the investigative level of 0.02 $\mu g/m^3$:

a) No further action required

Case 2 – One or more samples are at or above the investigative level of 0.02 $\mu g/m^3$ but all samples are below the Action Level:

a) Notify the applicable DOE field office of the results within one working day of receiving the final lab report via phone call or email
b) Investigate the potential causes for this result and determine the appropriate actions. These actions shall include, but are not limited to the following:

- Identify any workers who were potentially exposed. Provide written notification to all workers of their potential exposure
- Temporarily relocate any beryllium affected workers away from the potential beryllium exposure
- Contact the analytical lab to determine whether reanalysis of the sample is possible
- Review the work planning documents to ensure that work was performed as planned
- Review the hazard assessment to verify potential exposure sources were identified

c) Document any identified issues and process in accordance with the contractor's issue management system.

Case 3 – One or more samples are at or above the Action Level:

a) Immediately ensure that the work site is in a safe condition and stop any work activities occurring in the area where the sample(s) were taken
b) Notify the applicable DOE field office of the results within one working day of receiving the final lab report via phone call or email
c) Make any other required notifications in a timely manner
d) Make any required changes to the area postings and boundaries
e) Investigate the potential causes for this result and determine the appropriate actions. These actions shall include, but are not limited to the following:

- Identify any workers who were potentially exposed. Provide written notification to all workers of their potential exposure
- Temporarily relocate any beryllium affected workers away from the potential beryllium exposure
- Contact the analytical lab to determine whether reanalysis of the sample is possible
- Review the work planning documents to ensure that work was performed as planned
- Review the hazard assessment to verify potential exposure sources were identified

f) Determine the steps necessary to safely restart work
g) Document any identified issues and process in accordance with the contractor's issue management system.

6.11.5 Periodic Surface Sampling

6.11.5.1 Monthly Surface Sampling

Surface sampling is required at least monthly in the following areas if they are used by beryllium workers working in a BCA or BRA or support beryllium work:

- Lunchrooms
- Change rooms
- Step off pads and equipment laydown table/area
- Respirator issuance/maintenance rooms
- Radiological Count Rooms/Counting Areas.

The areas that require sampling are directly adjacent to counting equipment and are usually controlled for radiological contamination.

NOTE: *Monthly surface sampling of the above areas is only required when they are supporting BCA/BRAs where entries have been made in the past month.*

A minimum of one sample for every 100 sq. feet of floor area shall be collected. Collect samples using the methods in Appendices B, C, D, E, F and G of DOE-0342-002.

Sample results shall be analyzed in accordance with Section 4.7.2 of DOE-0342-002. While a characterization sample report is not required, a summary of the results shall be made available to employees.

Other periodic surface sampling may be necessary to determine the potential for skin contact with beryllium, as documented in the sampling plan or BWP.

6.11.5.2 Annual Surface Sampling

The following areas will be sampled at least annually:

- The primary storage and issuance locations for radiological or IH instruments that have been used within a BRA or BCA involving intrusive activities
- Maintenance/repair shops that service radiological or IH instruments used within a BRA or BCA involving intrusive activities
- Storage locations for "used/dirty" PPE laundry that may have been worn within a BRA or BCA involving intrusive activities

NOTE: *Annual surface sampling of the above areas is only required when they are supporting BRA or BCA involving intrusive activities in the past year.*

For maintenance/repair shops that receive instruments from other organizations, they shall either:

- Implement a tracking system to identify instruments that have been used in a BRA or BCA involving intrusive activities
- Conduct annual surface sampling on the assumption that instruments have been used in a BRA or BCA involving intrusive activities

A minimum of four samples for areas that have up to 400 sq. feet of floor area shall be collected. An additional sample for every 100 sq. feet of additional floor area shall be collected. Sampling shall be biased towards the locations where sources of potential cross-contamination (e.g., instruments and laundry bags) are routinely placed. Collect samples using the methods in Appendices B, C, D, E, F and G of DOE-0342-002.

Sample results shall be analyzed in accordance with Section 4.7.2 of DOE-0342-002. While a characterization sample report is not required, a summary of the results shall be made available to employees.

6.11.6 *SECTION REMOVED PER RESOLUTION FORM*

6.11.7 Monitoring and Analytical Methods

All beryllium personal monitoring conducted to meet this Program shall be overseen and/or managed by a qualified individual (Certified Industrial Hygienist or Project IH). All beryllium sampling will be conducted by an IH or IHT in accordance with applicable site-wide procedure, contractor policy or Industrial Hygiene Work Instructions. Sampling will be directed by the qualified individual.

Personal air samples shall be collected by an IH or IHT in accordance with the appropriate sampling method associated with the analytical method that will be used. While area samples should normally be collected in appropriate sampling method associated with the analytical method that will be used, it is acceptable to use a high volume sample pump to collect area samples during short duration work activities.

All samples shall be analyzed by a laboratory accredited for metals by the American Industrial Hygiene Association (AIHA) or a laboratory that demonstrates quality assurance for metals analysis that is equivalent to AIHA accreditation. Methods of monitoring and analysis shall meet accuracy criteria established in 10 CFR 850.24(e).

6.11.8 Notification of Monitoring Results

Requirements for documentation of field monitoring results are specified as follows:

- Monitored employees shall receive written notification of personal beryllium monitoring results within 10 working days after receipt of the sample analysis. The results may be posted in a location that is readily accessible to monitored employees, or by e-mail with a "read receipt," or by hand delivery
- Posted monitoring results shall not identify individual workers by name
- Monitoring results are reported without reduction of respiratory protection worn during the measured exposure
- All employees have the right to request beryllium monitoring data and additional explanation of the sampling results

If the monitoring results indicate that the worker exposure is at or above the Action Level, the following actions must be completed:

- Within 10 working days after receipt of the laboratory results, but not to exceed 14 calendar days, the employee shall receive written notification stating that the Action Level has been reached or exceeded. This will include remedial actions, if practicable, that will be taken by the employer to reduce exposure. Notification to the employee must be made personally
- If the Action Level is exceeded without respiratory protection, or if above the protection factor of the respirator, the responsible employer shall notify the DOE Field Element and the SOMD. DOE shall initially be notified by phone upon receipt of sample analysis, followed by written notification within 10 working days. The SOMD shall also be notified as soon as possible but within 10 working days of the receipt of the sample analysis by the project
- If unexpected exposures occur, or an unexpected concentration level of beryllium occurs, the CBDPP Committee shall be made aware of the circumstance to ensure lessons learned and remedial actions are communicated to all affected groups

6.12 Exposure Reduction and Minimization

The worker exposure minimization goal for all Hanford Site projects is as low as practicable. However, if airborne exposure levels to beryllium meet or exceed the Action Level at any work site, a review of beryllium work practices and controls shall be conducted by the Project IH and appropriate modifications made to reduce exposures to as low as practicable. This review will include:

- Establishing project goals for reducing and minimizing exposure
- Determining actions necessary to achieve these goals, including the design and application of engineering controls
- The rationale and strategy for meeting these goals

- A means of tracking progress toward meeting these goals, or documentation verifying that the goals have been met
- Additional employee/surface/area monitoring for beryllium
- Additional regulated or controlled area controls
- Modifications to hygiene facilities and practices
- Additional respiratory protection or other PPE
- Additional warning signs and posting
- A review of any modifications with employees at site pre-job and safety meetings.

For work where either monitoring data or a negative exposure assessment has established that the Action Level will not be exceeded, the above elements will be implemented on a graded approach that is adequate to control the identified hazard. The applicable controls must be addressed in the BWP.

6.13 Managing Beryllium Worker Exposure

This Program establishes an Action Level of 0.1 $\mu g/m^3$ (8 hour TWA). It is the expectation, however, that employee exposures to beryllium will be kept as low as practicable.

Each contractor will review ALL activities where breathing zone sample results exceed the Level of Quantification (LOQ) or Reporting Detection Limit (RDL). The review shall include, at a minimum, the work planning for the activity, controls established for the activity, the content of the BWP and feedback from the workers involved in the activity.

If the results of this review find that there was unexpected beryllium exposure, the review will be communicated to the CBDPP Committee. The Committee will use the information to improve worker protection.

6.14 Managing Beryllium-Affected Worker Exposure

A beryllium-affected worker requires a higher level of protection from beryllium exposure to prevent the transition from sensitization to disease, or further progression of the disease. The current consensus of beryllium experts in the medical field is that exposure to beryllium for these individuals should be maintained as low as possible to protect their health status from further decline. Therefore, it is the policy of DOE that beryllium-affected workers will not be assigned to perform work in a BCA or an area with measurable airborne beryllium that is at or exceeds .02 $\mu g/m^3$ (8 hour TWA). This worker protective measure will be accomplished as part of the hazard assessment conducted during the work planning process.

DOE expects that contractors, and their subcontractors at any level, who are covered by the scope of this CBDPP follow the process outlined in the remainder of this section to ensure that beryllium-affected workers are protected.

Sampling shall be performed for each beryllium-affected worker within 60 days of the time the worker receives a diagnosis of Beryllium Sensitization and/or Chronic Beryllium Disease in accordance with the *Sample Protocols for Beryllium-Affected Workers* (Appendix C). Periodic

sampling shall also be performed in accordance with the *Sample Protocols for Beryllium-Affected Workers* (Appendix C) or as requested by the affected worker.

If the air sampling results show measurable levels of airborne beryllium at or exceeding .02 $\mu g/m^3$ (8 hour TWA), the contractor and the affected worker will discuss potential causes for this result and determine the appropriate actions. These actions shall include, but are not limited to the following:

- Relocate temporarily the affected worker away from the potential beryllium exposure
- Determine through discussion with the affected worker what activities occurred during sampling
- Collect additional airborne and surface samples during similar work activities
- Contact the analytical lab to determine whether reanalysis of the sample is possible
- Review the work planning documents to ensure that work was performed as planned
- Review the hazard assessment to verify potential exposure sources were identified
- Notify the SOMD

The affected worker is free to discuss his/her exposure based on the sampling results with the SOMD. The purpose of the meeting will be to clarify the medical risk of the exposure event to the affected worker.

It should be noted here that DOE has provided contractual direction to the Hanford prime contractors expressing DOE's expectation that contractors will be able to identify jobs for beryllium-affected workers that shall not involve a decrease in wages or benefits and are not exposed at or above the Action Level.

NOTE: *Per DOE-0342-002, as part of good housekeeping, areas that have multiple samples that exceed the trigger level but not the Control Level shall be remediated. Because areas being remediated are outside a BCA or BRA, a BWP is not required. While beryllium affected workers are not prohibited from participating in these remediation activities, they must be fully informed of the work scope and given the choice whether to participate.*

6.15 *SECTION REMOVED PER RESOLUTION FORM*

6.16 *SECTION REMOVED PER RESOLUTION FORM*

6.17 Engineering Controls

Engineering controls shall be designed into work activities whenever feasible to minimize exposures, even when exposures are predicted to be below the Control or Action Levels. Engineering controls shall be the first consideration in personnel protection and the main point of focus during the site condition walk down for the Hazard Assessment. Engineering controls include but are not limited to the following:

- HEPA filtered air movers that re-circulate air to remove airborne beryllium inside a work area
- Application of appropriate and/or critical barriers to isolate sources of beryllium and prevent the spread of contamination

- Use of negative air pressure to contain airborne beryllium
- Decontamination of surfaces prior to disturbing structural elements of a contaminated building
- Use of wetting agents during demolition of beryllium controlled facilities.
- Intact removal of contaminated ventilation equipment prior to demolition
- Use of powered shears to reduce the size of items during demolition rather than cutting with torches.

Fixing beryllium contamination in place using sprayed-on fixatives is an alternative to decontamination. Spraying on fixatives allows handling without the potential for re-suspension of beryllium into the air, or the spread of surface contamination. Fixed beryllium, however, can still be hazardous if the covering is penetrated (i.e., drilling, grinding, cutting, and welding). It is possible that beryllium contamination from historical processes and/or usage has been encapsulated into painted walls. Sampling is currently unable to effectively quantify beryllium levels in and under paint, therefore, workers may not be aware that beryllium contamination is present. Fixed beryllium contamination, and areas where the possibility that past beryllium has been encapsulated in a painted surface, shall be properly posted and/or labeled per Site-Wide Procedure DOE-0342-003 (*Beryllium Posting and Labeling Requirements*).

6.18 Hygiene Facilities and Practices

The following are prohibited in a BRA or BCA:

- Consumption or use of beverages, food, gum, or tobacco
- Application of cosmetics
- Open or uncovered wounds

A separate, clean area (change room) shall be provided for beryllium workers required to work in a BRA, or as required by the project IH for work in a BCA. This area shall provide workers with some method for storage of personal clothing. Storage of PPE in this area shall be adequate to ensure that it is clean and maintained in usable condition. The change room shall be cleaned on a routine basis and wipe sampling shall be conducted at least every 30 days while activity is being performed.

A PPE removal area shall be established at the exit of beryllium-regulated or controlled areas prior to performing work in the BCA or BRA. PPE removal areas are not required to be maintained for unused BRAs and BCAs. The PPE removal area may be under negative air pressure, or its location will be selected to prevent dispersion of beryllium into clean areas, while providing employees with adequate protection from airborne or skin contact with beryllium. PPE shall be removed prior to exiting the work area and prior to entering a clean area. Periodic wipe sampling shall be conducted on the clean side of the step off pad of the PPE removal area at least every 30 days while activity is being performed to ensure that beryllium is not entering this area from the work site.

Beryllium workers performing work in a BRA or BCA shall be provided with a lunchroom facility that is readily accessible, and is located away from the work site and free (less than 0.2 µg/100 cm^2 or background) from beryllium contamination or airborne beryllium. Beryllium

workers shall not enter the lunchroom facility with potentially contaminated protective clothing and if full body PPE has been worn, without washing their faces and hands (a shower is required for workers in BRAs at the end of their shifts). Equipment shall not be moved from a beryllium-regulated or controlled area to the lunchroom facility without surveys, decontamination, or other required controls. The lunchroom shall be cleaned on a routine basis and periodic wipe sampling shall be conducted at least every 30 days while activity is being performed to ensure that the room, including tables for eating, is free (less than 0.2 µg/100 cm^2 or background) of beryllium. If beryllium is detected at greater than 0.2 µg/100 cm^2, or greater than background in settled dust, the lunchroom will be taken out of service, posted appropriately, decontaminated, and a review of contamination control procedures shall be conducted.

Employees who have worked in a BRA must shower at the end of the work shift. Showers may be installed between the regulated area and the change room, or may be located at another location. The use of showers not located adjacent to the work site must be approved by the Project IH. Lunchrooms, showers, change rooms/areas, restrooms, and hand-washing facilities must comply with the requirements of 29 CFR 1910.141.

6.19 Respiratory Protection

Use, maintenance, and selection of respirators for protection of the workers from airborne beryllium will be in accordance with the applicable contractor respiratory protection procedures. Respiratory protection will be required for any potential airborne exposure at or above the Action Level. Respiratory protection may be required by the Project IH for lower levels of exposure based on the potential for increased worker exposure concentrations and specific work task. The respiratory protection required for a specific work task shall be specified in the applicable BWP. Respiratory protection may be provided to an employee requesting such respirator when a respirator is not required if the use of the respirator does not produce additional safety hazards.

6.20 Personal Protective Equipment (PPE)

10 CFR 850.29 requires the use of protective clothing where particulate forms of beryllium may contact workers' skin, enter openings in workers' skin or contact workers' eyes, including where airborne levels of beryllium meet or exceed the Action Level or where surface levels exceed 3 µg/100 cm^2. The Project IH selects the actual PPE to be used and specifies that PPE in the applicable BWP. Government furnished modesty clothing and/or coveralls shall be worn under full body anti-contamination clothing in BRAs (this clothing shall not be taken home). If the disposable outer garment maintains its integrity, the undergarments will be considered to have no contamination. If the outer garment rips, tears, or is otherwise in question, the garments will be thrown away as beryllium waste or held pending IH sample results. Any beryllium worker, however can request protective clothing for work in a BCA if the use of the PPE does not produce additional safety hazards.

Beryllium-contaminated PPE and clothing must be handled in a manner to prevent the beryllium from becoming airborne: it cannot be shaken, air-cleaned, or otherwise disturbed prior to bagging. Disposable PPE will be bagged, labeled, and disposed as waste in accordance with Section 6.23 of this Program. Respirator face pieces sent to the laundry facility will be placed in plastic bags and labeled in accordance with DOE-0342-003, *Hanford Site Beryllium Posting and*

Labeling Requirements Procedure. Prior to shipment, the laundry facility will be notified by the Project that beryllium-contaminated PPE is being sent.

Refer to Appendix G: *Typical Beryllium Personal Protective Equipment "Dress/Undress"* for typical personal protective equipment dress/undress sequences for beryllium work activities. Communicate any changes to the typical Dress/Undress sequences in the Pre-Job/Evolution briefing. When PPE requirements are specified by Radiological Control, Industrial Hygiene, or Safety Organizations, they shall ensure that all PPE requirements are compatible.

6.21 Housekeeping

10 CFR 850.30 requires cleaning of surfaces in beryllium operational areas that exceed a removable beryllium level of 3.0 µg/100 cm^2 during non-operational periods. Operational areas are defined in 10 CFR 850 as: "An area where workers are routinely in the presence of beryllium as part of their work activity," such as a machine shop, blasting booth or welding booth. Legacy beryllium contamination in facilities does not constitute an operational area. Beryllium-contaminated surfaces in these facilities will be controlled to the extent required to prevent airborne beryllium levels in employee work areas from exceeding the Action Level, to prevent the spread of beryllium contamination, or to prevent airborne beryllium from escaping the building during demolition.

Cleaning of equipment and materials will be conducted for release of materials from BRAs and BCAs. Such cleaning will be conducted by using a wet method, High Efficiency Particulate Air (HEPA) vacuuming, tacky cloth or other method that will minimize the generation of airborne beryllium. All waste from cleaning operations will be bagged, labeled, and disposed as beryllium-contaminated waste. The HEPA vacuums used for beryllium cleanup will be labeled as internally contaminated in accordance with DOE-0342-003, *Hanford Site Beryllium Posting and Labeling Requirements Procedure*.

Additional labeling may be required for radiological or other contaminants.

6.22 Release Criteria

The Project Manager (or Area Manager) shall notify the appropriate DOE Field Element of the intent to release contaminated government equipment at least 30 calendar days prior to the release date. This includes items from building locations with known beryllium contamination going to the general public or for use in a non-beryllium area within the Hanford Site. Notification is not required for transfer of items for laundering, storage of wrapped/labeled material, transfer of samples or sampling pumps, or waste transportation/disposal operations.

If releasing beryllium-contaminated equipment or items to the public, the Project IH shall prepare a written release plan. This plan shall identify the extent of contamination, decontamination, and the sampling plan assuring that the surfaces of the equipment or items are less than 0.2 µg/100 cm^2, or the background level, whichever is greater. The equipment or items will be labeled in accordance with DOE-0342-003, *Hanford Site Beryllium Posting and Labeling Requirements Procedure*, and release will be conditional upon the recipient's written plan to adequately control the material in order to prevent hazards to workers, the public, or the environment.

All written release plans for release of beryllium-contaminated equipment or items to the public shall be submitted to DOE for review and approval prior to the planned release.

When subcontractors are responsible for government equipment that is contaminated with beryllium, and they plan to release such equipment or items to the general public or for use in a non-beryllium area within the Hanford Site, the subcontractor shall notify the contractor at least 45 calendar days prior to the release date. The contractor shall forward the notification to DOE at least 30 calendar days prior to the release date.

To ensure consistent methods for the removal of items/equipment from a BCA or BRA, the following processes have been developed:

NOTE: *For Sections 6.22.1 and 6.22.1.1, when an area is being controlled for hazards that requires a release plan (in addition to beryllium), follow your established contractor policies/procedures to establish a proper release process for material.*

Material includes items/equipment/systems.

6.22.1 Requirements for Material Removal from Beryllium Controlled Areas

All material will be decontaminated by wet wipe, HEPA filtered vacuum or other appropriate decontamination method. If any material was used in supporting BCA/BRA entries where work involved intrusive activities, it shall be determined if there is a potential for internal contamination, label as necessary and control material.

A percentage of all material that will be removed from the BCA/BRA will be sampled to ensure the decontamination method is effective and placed and managed within a Beryllium Material Area (BMA) per DOE-0342-003, *Hanford Site Postings and Labeling Procedure.* These sampled items shall be bagged if possible; material too large to bag shall be segregated when placed into the BMA until sample results are received. If sample results of the decontaminated material indicate a beryllium cleared status, release the material.

If any samples of the decontaminated material meet or exceed the beryllium contamination trigger level, return material (including any other material within the same bag) to the BCA/BRA. Perform documented investigation as to why the decontamination effort failed, and ensure corrective actions are taken prior to resuming material release from BCA/BRA.

6.22.1.1 Requirements for Removal of Material Bagged and/or Wrapped Prior to Entering Areas Controlled for Beryllium Contamination

The exterior bag/wrap will be decontaminated by wet wipe; HEPA filtered vacuum or other appropriate decontamination method prior to removing material from exterior bag/wrap. If any material was used in supporting BCA/BRA entries where work involved intrusive activities, it shall be determined if there is a potential for internal contamination, label as necessary and control material. Sample pre-bagged/wrapped material as deemed necessary by the IH/IHT, or equivalent, covering the removal. Pre-bagged/wrapped material may be released immediately for reuse to the controlling organization.

If any samples of the decontaminated item(s) or equipment meet or exceed the beryllium contamination trigger level, retrieve material for re-sampling. Perform documented

investigation as to why the decontamination effort failed, and ensure corrective actions are taken including notification to the affected work force.

Equipment deemed too large for removal from a BCA/BRA to be staged in a BMA may remain in the BCA/BRA if:

- No additional activities are conducted that could re-contaminate the equipment, and/or
- The equipment is wrapped, covered or contained to prevent re-contamination.

Once sample results support removal (i.e., below the trigger level), the equipment shall be released from the BCA/BRA per specific direction contained in the applicable BWP and/or work documents.

Items to be transferred from one BCA/BRA and staged in another BCA/BRA, shall be wrapped/bagged or contained to prevent the spread of contamination, per Project IH instructions.

6.23 Waste Disposal

Waste material removed from a BCA or BRA that is not placed directly into Environmental Restoration Disposal Facility (ERDF) waste containers, drums, or other sealed containers for transport shall be bagged and/or wrapped in at least one layer of 6 mil or thicker plastic. Bagged/wrapped or otherwise containerized waste shall be labeled in accordance with DOE-0342-003, *Hanford Site Beryllium Posting and Labeling Requirements Procedure.* Bulk debris with beryllium surface contamination, such as broken concrete, lumber or dry wall, will be fixed with paint, soil cement, or other fixative agents, decontaminated, wrapped, wetted or otherwise reduced to control removable beryllium surface contamination for disposal at the Hanford Site's ERDF or other appropriate disposal sites. Soil with greater than 0.1 percent by weight of beryllium would also be considered beryllium waste. Such waste shall be transported to ERDF in an ERDF-approved container labeled appropriately per DOE-0342-003, *Hanford Site Beryllium Posting and Labeling Requirements Procedure.* Disposal of beryllium-contaminated waste at ERDF shall be conducted in a manner that does not release airborne beryllium above the Action Level, but disposal in a sealed container is not required by 10 CFR 850. ERDF containers used to transport beryllium waste shall be labeled and controlled for use only with beryllium waste until the container is released by wipe sampling.

Only qualified beryllium workers shall handle plastic wrapped or bagged beryllium contaminated waste/material until such time that the package is disposed of in a sealed hard sided container (i.e., metal drums, ERDF containers, or other shipping containers). This requirement is not applicable to the handling and transport of beryllium samples.

6.24 Beryllium Emergencies

The potential hazards of a beryllium release are included in the applicable site emergency action plan in accordance with the Hanford Site Emergency Management Program Plan. A spill of contaminated waste during transportation is addressed in Hanford Site emergency planning. The responsible employer must comply with 29 CFR 1910.120 (l) for handling beryllium emergencies related to decontamination and decommissioning operations. The responsible

employer must comply with 29 CFR 1910.120 (q) for handling beryllium emergencies related to all other operations.

6.25 Medical Surveillance

Beryllium medical surveillance on the Hanford Site will be provided by the SOMD in accordance with the Hanford SOMC Beryllium Medical Support Plan (Attachment 4) or an equivalent plan. This plan will be reviewed with the SOMC periodically to ensure that medical services meet the requirements of this Program and 10 CFR 850.34. It is the contractors' responsibility to identify employees to the SOMD who are beryllium workers. Additionally, it is the contractors' responsibility to communicate to the workforce the existence of the beryllium medical surveillance program. The contractors must also inform affected workers of the right to additional medical opinions if there is a disagreement between the employee and the SOMD concerning medical care.

Contractors will identify beryllium workers through the Employee Job Task Analysis (EJTA) system, which is administered by SOMC. Beryllium workers are identified during the hazards analysis phase of project planning, or from the review of IH monitoring data. The employee's Supervisor reviews the classification with the employee and has the EJTA reviewed and approved by the project IH. The EJTA is then submitted to the SOMD or designee, and the employee is scheduled for an initial beryllium medical exam. The contractor will revise the EJTA if any worker is removed from beryllium worker status.

An employee cannot be designated as a beryllium worker until the individual's medical results have been completed and received by the worker and the contractor, indicating that he/she is medically cleared for work in beryllium locations and that the employee has received the appropriate training.

Current employees whose previous work at a DOE Site (including Hanford) may have resulted in exposure to beryllium can participate in the past exposure program by identifying themselves to SOMC through the Hanford Site beryllium employee questionnaire. This questionnaire is available at www.hanford.gov/safety/beryllium/index.htm. The questionnaire is filled out by the employee, sent to SOMC for evaluation of past occupational exposure to beryllium and for scheduling of the employee for medical evaluation. Contractors shall inform all workers of the program and the opportunity to self-identify past exposures. See the above Web site for more information on this program. If workers do not have Internet access, contractors will provide hard copies upon request.

Copies of all personal monitoring data reports are transmitted to the SOMC to be included in the worker's medical folder and tracked for data analysis. Reports are to include: full name of the worker (not a nickname), HID of worker, contractor, prime contractor if contractor is a sub, sample date, sample location, sample ID number, sample result, calculated TWA and whether or not respiratory protection was worn. The SOMC will return all reports that cannot be positively matched to a worker's medical record to the contractor designated point-of-contact.

Monthly, the SOMC will report to the contractor CBDPP representative if no beryllium personal monitoring data reports were received. The SOMC will report monthly to the CBDPP committee which contractors submitted beryllium personal monitoring data reports. Quarterly, the SOMC will report to DOE-RL/DOE-ORP, CBDPP (including HAMTC and the Beryllium Awareness

Group [BAG]) on the status of beryllium workplace monitoring submittals and/or the lack of submittals.

In addition, periodic reports shall be made by the contractors to the SOMD summarizing the current or planned use of PPE, current and planned beryllium activities, baseline data on beryllium-controlled facilities, and overall trends in monitoring data and hazards assessment. Reporting of this data provides the SOMD with adequate information to link workplace conditions and health outcomes identified during periodic medical surveillance of workers.

Workers who exhibit signs or symptoms of beryllium exposure will be identified through routine medical surveillance or by self-identification. Incidences of chronic beryllium disease shall be reported by the responsible contractor on the applicable Occupational Safety and Health Administration reporting form. Contractors shall maintain current identification of all of the above classifications of workers, as well as workers that are receiving medical removal protection benefits.

Persons identified as being beryllium-affected have the option of obtaining further medical evaluations. During medical evaluation, SOMC shall inform workers of their opportunity for multiple physician reviews. Expenses for this process are reimbursable. The worker must notify their responsible employer in writing of his/her intent to seek a second opinion within 30 calendar days of receiving the written notice from the SOMD, or within 30 calendar days of receiving the initial physician's written opinion, whichever is later.

6.25.1 Off-Site Medical Examination Costs

The information provided in this section supersedes information on this topic provided prior to January 1, 2013.

The direction provided in this section is effective February 1, 2013. Consistent with the requirements of 10 CFR 850.34(b), "Medical Surveillance," if an employee of DOE, a DOE contractor, or other worker at a DOE Facility is referred by the SOMD to an external qualified medical provider as part of the Hanford Site Beryllium Medical Surveillance Program, the employee shall be paid his/her regular wages and the associated travel and per diem costs. This is an allowable and reimbursable expense for the employer. The per diem costs shall not exceed the rates allowed by contract (FAR Subpart 31.205-46).

If an employee has an accepted Energy Employees Occupational Illness Compensation Program Act (EEOICPA) claim related to beryllium exposure, the employee may choose to have his/her off-site medical examination costs paid under the beryllium medical surveillance program provided by the SOMD and the associated travel and per diem costs paid for by his/her responsible employer under 10 CFR 850. This is an allowable and reimbursable expense unless there is an open worker's compensation claim as discussed below. If an employee chooses to use their EEOICPA claim, they must contact their claims representative for appropriate surveillance approval.

If an employee has an accepted and open workers' compensation claim related to beryllium, the employee's off-site medical surveillance costs and associated travel and per diem costs must be paid for under his or her workers' compensation claim or an EEOICPA claim. Payment of these costs by the responsible employer is not an allowable and reimbursable expense. If an employee has an accepted, but closed workers' compensation claim related to beryllium, the employee may

choose to have his/her off-site medical examination costs paid under the beryllium medical surveillance program provided by the SOMD and the associated travel and per diem costs paid for by his/her responsible employer under 10 CFR 850. This is an allowable and reimbursable expense. If an employee chooses to use their workers' compensation claim, they must contact their claims representative for appropriate surveillance approval.

The choice of medical treatment coverage between EEOICPA, worker's compensation, or other compensation programs will remain with the employee as discussed above.

When under 10 CFR 850 medical surveillance and a medical emergency occurs during or immediately following an employee's off-site medical surveillance procedures and are caused by these procedures, any additional medical treatment or hospitalization and its associated costs and time will be covered and is an allowable and reimbursable expense. Upon seeking clearance through the SOMC after medical surveillance travel under 10 CFR 850, any medical issues caused by the off-site medical surveillance procedures that prevents an employee from being allowed to return to work will be considered an extension of the travel until such time as the employee is cleared to return to work, this is an allowable and reimbursable expense.

If the SOMD or receiving medical facility determines that it is necessary for the employee to be accompanied by another person, then that person's travel and per diem are also allowable and reimbursable expenses at the same maximum rate specified above. If the companion is employed at the Hanford Site, he or she will be compensated for loss of wages provided the timekeeping practices appropriately track the hours in a specific amount. These costs are allowable and reimbursable each time the employee is referred by the SOMD as part of the Beryllium Medical Surveillance program. Lost wages for a companion that is not employed at the Hanford Site are not reimbursable.

If the SOMD or receiving medical facility determines that it is medically necessary for the employee to stay on travel for an additional day (e.g., day of recovery following a procedure), the employee's medical and associated travel and per diem costs and the companion's travel and per diem costs are an allowable and reimbursable expense, as specified in the above paragraph.

If the employee is traveling under workers' compensation claims or EEOICPA, then determinations regarding medical necessity of companion travel and/or additional travel days must be approved by the appropriate claims representative. If any additional medical treatment or hospitalization is needed due to an employee's medical surveillance procedures, contact your appropriate claims representative for assistance.

6.26 Medical Removal

The SOMD shall provide a written recommendation when it is medically appropriate to remove the worker from beryllium exposure. The recommendation of the SOMD must be based on one or more positive Be-LPT results, diagnosis of chronic beryllium disease, an examining physician's recommendation, or any other symptoms/signs/testing that the SOMD deems medically appropriate to warrant removing the worker.

6.26.1 Worker Consultation before Temporary or Permanent Medical Removal

When the SOMD determines that a beryllium-affected worker should be temporarily or permanently removed from exposure to beryllium, the SOMD must advise the beryllium-affected worker of the determination that medical removal is necessary to protect the worker's health. The SOMD shall provide the beryllium-affected worker with a copy of 10 CFR 850 and its preamble and any other information the SOMD deems necessary regarding the risks of continued exposure to beryllium and the benefits of removal.

The beryllium-affected worker will have the opportunity to obtain answers to any questions concerning medical removal. The SOMD shall obtain the beryllium-affected worker's signature acknowledging that the worker has been advised to accept medical removal from beryllium exposure as provided in this section, and has been provided with the information specified in this paragraph on the benefits of removal and the risks of continued exposure to beryllium.

6.26.2 Temporary Removal Pending Final Medical Determination

Contractors will offer a beryllium-affected worker temporary medical removal from exposure to beryllium on each occasion that the SOMD recommends, in a written determination, that the worker should be temporarily removed from such exposure pending a final medical determination on whether the worker should be removed permanently. A final medical determination can be the outcome of the multiple physicians review process, or the alternate medical determination process provided for in paragraphs (c) and (d) of 10 CFR 850.34.

When a beryllium-affected worker is temporarily removed from beryllium exposure pursuant to 10 CFR 850.35(1), the contractor will transfer the worker to a comparable job for which the worker is qualified (or for which the worker can be trained in a short period) and where beryllium exposures are in accordance with Section 6.14 of this Program.

The contractor will maintain the beryllium-affected worker's total normal earnings, seniority, and other worker rights and benefits as if the worker had not been removed. When there is no such job available, the contractor will provide the beryllium-affected worker the medical removal protection benefits specified in paragraph (b)(2) of 10 CFR850.35 for one year, or until a job becomes available, whichever comes first. The one year time period allows for medical testing, the multiple physician review or alternate medical determination process, and diagnosis. In some cases, final medical determination may not be made within the one-year time period specified in 10 CFR 850. In these cases, prior to the expiration of the one year period the SOMD will issue another recommendation for temporary medical removal until a final medical determination is made.

6.26.3 Permanent Medical Removal

When a beryllium-affected worker is removed permanently from beryllium exposure, based on the SOMD's recommendation that is pursuant to 10 CFR 850.35(a), the contractor shall provide medical removal protection as required in 10 CFR 850.35(b).

6.26.4 Return to Work after Medical Removal

The contractor will not return a beryllium-affected worker who has been permanently removed to the worker's former job status unless the SOMD first determines, in a written determination, that continued medical removal is no longer necessary to protect the worker's health. When the SOMD determines that continued exposure to beryllium will not pose an increased risk to the beryllium-affected worker's health, and medical removal is an inappropriate remedy in the circumstances, then the SOMD must fully discuss these matters with the worker. Following the discussion between the SOMD and the beryllium-affected worker, the SOMD, in a written determination, may authorize the contractor to return the worker to his or her former job status. Thereafter, the returned beryllium-affected worker must continue to be provided with medical surveillance under 10 CFR 850.34.

6.26.5 Medical Removal Protection Benefits

If or when a beryllium-affected worker has been permanently removed from beryllium exposure, the contractor will provide the worker, if necessary, the opportunity to transfer to another position, which is available, or later becomes available, for which the beryllium-affected worker is qualified (or for which the worker can be trained in a short period), and where beryllium exposures are in accordance with Section 6.14 of this Program. When the beryllium-affected worker **cannot** be transferred to a comparable job where beryllium exposures are in accordance with Section 6.14 of this Program, then the contractor will provide a maximum of two years of permanent medical removal benefits. Based on DOE Interpretation D04-12-002 and Richland Operations Office Letter 07-AMSE-0011, if the SOMD or a multiple physician review determines that a beryllium-affected worker's health affects his/her ability to perform normal job assignments due to chronic beryllium disease, or a consequential illness related to chronic beryllium disease, the beryllium-affected worker shall be entitled to Permanent Medical Removal Benefits pursuant to 10 CFR 850.35 (b). For up to two years, the responsible employer must maintain the removed worker's total normal earnings, seniority, and other worker rights and benefits as though the worker had not been removed.

It is DOE's expectation that contractors will be able to identify jobs for beryllium-affected workers that shall not involve a decrease in wages or benefits and are not exposed at or above the Action Level.

When required to provide medical removal protection benefits, the contractor will maintain the removed worker's total normal earnings, seniority, and other rights and benefits including overtime, as though the worker had not been removed.

When a removed beryllium-affected worker files a claim for workers' compensation payments for a beryllium-related disability, the contractor will continue to provide medical removal protection benefits pending disposition of the claim. The contractor will receive no credit for the worker's compensation payments received by the worker for treatment-related expenses. However, the contractor's obligation to provide medical removal protection benefits to a removed beryllium-affected worker is reduced to the extent that the worker receives compensation for earnings lost during the period of removal, either from a publicly funded or employer funded compensation program, or from employment with another employer that is made possible by virtue of the worker's removal.

For the purposes of 10 CFR 850.35, the requirement that the contractor provides medical removal protection benefits is not intended to expand upon, restrict, or change any rights to a specific job classification or position under the terms of an applicable collective bargaining agreement.

Hanford Site contractors will not condition the provision of the medical removal protection benefits upon the beryllium-affected worker's participation in medical surveillance provided in accordance with 10 CFR 850.34.

6.26.6 Total Normal Compensation Calculations

When a beryllium-affected worker is placed on Permanent Medical Removal and the responsible employer will be paying Permanent Medical Removal Benefits, total normal compensation includes regular pay, overtime, bonuses, and any other monetary upgrades. Total normal compensation will be calculated for a two-year time frame preceding acceptance of Permanent Medical Removal Benefits.

Overtime compensation shall be based upon the past two years of actual overtime worked by the affected worker, or the average of the affected worker's work group, whichever is greater. The two-year average will be calculated from the date that the affected worker is medically removed by the SOMD.

In cases where the medically removed worker had any upgrades in hourly pay, those upgrade totals shall also be calculated for a two-year time period, preceding the date of removal, and added to the individual's salary. Upgrades are considered part of the worker's total normal compensation.

In cases where the medically removed worker received bonuses for work performed, those bonuses shall also be calculated for the two-year time period preceding the date of removal and added to the individual's salary. This type of compensation will be prevalent in affected workers who are non-bargaining or exempt and who received bonuses as part of total normal compensation.

6.27 Training/Counseling and Distribution of Information

Through training, counseling, and the distribution of information to all employees, the hazards of beryllium, its effects and methods for controls shall be communicated to employees. This information is included in the Hanford General Employee Training (HGET) or equivalent and through personal counseling as required.

6.27.1 Training

Hanford Site contractors shall ensure all employees receive the appropriate level of training on the hazards of beryllium. The level of training shall be based on the workers' current and past beryllium activities.

All employees will receive information on the general hazards of exposure to beryllium, appropriate controls, and medical information on chronic beryllium disease. This information is included in HGET, which will be administered to all employees prior to beginning work at

Hanford and thereafter on an annual basis. Information will also be provided to employees through letters, safety meetings, and internal publications.

Beryllium and beryllium-associated workers will be provided with formal training on beryllium work hazards upon initial hire, and every two years, or if the employer has reason to believe that the worker lacks the proficiency, knowledge, or understanding needed to work safely with beryllium. The level of training required will be based upon the employee's current job assignment. Beryllium-associated workers include workers who do not currently have potential exposure to beryllium but who have potentially been exposed to beryllium in the past. Hanford Site contractors shall ensure that they have a method for identifying workers who have had past beryllium exposure. Formal training for beryllium-associated workers shall meet the requirements of 10 CFR 850-37, Section (b). As a minimum, these requirements shall:

- Be in accordance with 29 CFR 1910.1200, Hazard Communication
- Include the contents of the CBDPP
- Include potential health risks to the family members and others who may come in contact with beryllium on beryllium workers, the clothing or other personal items of a beryllium worker as the result of a beryllium control failure at a DOE facility.

Beryllium and beryllium-associated workers shall receive additional training on any revisions to the CBDPP. Changes to the approved training programs will be submitted to the CBDPP Committee for review. The Committee will review the changes, evaluate the impacts to workers, and make recommendations as to any necessary communications.

Beryllium workers' training will include an active learning element. The active learning element may be a part of other training if the Systematic Approach to Training (SAT) documents the appropriateness and maintains applicability.

Consistent training is critical to successful implementation of the Program, therefore, it is recommended that training be provided by the Volpentest HAMMER Training and Education Center (HAMMER). Contractors may provide their own training. The CBDPP Committee reviews the training for equivalency to the training provided by HAMMER.

6.27.2 Counseling

Counseling will be provided to beryllium-affected workers by both SOMC and the contractor. Counseling from SOMC should be at the time of confirmed diagnosis of beryllium sensitization (BeS), CBD, or medical removal.

The SOMC shall provide counseling to beryllium-affected workers on the following subjects:

- Medical surveillance program
- Why have they become Beryllium-affected?
  - What is going on in the body?
- Medical/Diagnosis Process/Treatment
  - Percent of people that go from BeS to CBD
- Medical and Psychological counseling available
  - In house
  - Outside

- Risk of continual beryllium exposure
  - Explain the 0.02µg/m^3 (beryllium-affected worker airborne investigation level)
  - The SOMD opinion letter to the contractor

Within 10 working days after receiving notification from the SOMD that an individual has been diagnosed with sensitivity or CBD, not exceeding 14 calendar days, contractors shall provide counseling to beryllium-affected workers using the Beryllium Counseling and Benefits Handbook (HNF-52712) as a guide. Counseling shall include the following subjects:

- Career counseling
- Procedures limiting beryllium-affected worker exposure to beryllium. Explain the CBDPP sections pertaining to managing beryllium-affected workers
- Medical removal protection
- Medical removal protection benefits
- Administration procedures and worker rights. Applicable worker's compensation laws and regulations
- Provide point-of-contact for information pertaining to setting up travel, pay, per diem, and explain travel companion for diagnosis
- Provide to the worker contacts in addition to the contractor if they choose to discuss further
- Explain long term and Social Security disability benefits
- Third party claims administrator(s) and their requirements, as applicable.

The manager shall make it a job assignment for the beryllium-affected worker to attend the contractor counseling.

The prime contractors are responsible to ensure counseling is conducted for beryllium-affected workers who work for their subcontractors.

6.27.3 Distribution of Information

An important source of beryllium information for employees is the Beryllium Information Booklet. Contractors are required to make available the Beryllium Information Booklet to all levels of their subcontractors. A printed copy of the booklet shall be provided to an employee if requested by that employee.

Those employees who are designated as beryllium workers will receive a printed copy of the Beryllium Information Booklet at the time of their initial assignment as a beryllium worker.

Additional Information will also be provided to employees through letters, safety meetings, and internal publications.

6.28 Postings and Labeling

Postings and labels are used to alert personnel to areas with the presence of beryllium or possible beryllium contamination. They serve as aides in minimizing exposures while preventing the spread of contamination.

The Hanford Site contains areas/items/equipment and/or systems where beryllium contamination is or may potentially be present. The establishment, use and posting/labeling requirements

where beryllium contamination is or may be present is described in Hanford Site Wide Procedure DOE-0342-003 (*Beryllium Posting and Labeling Requirements*).

6.29 *SECTION REMOVED PER RESOLUTION FORM*

6.30 Record Keeping and Use of Information

The responsible contractor must establish and maintain accurate records of all beryllium inventory information, hazard assessments, exposure measurements, and exposure controls. The recordkeeping system developed by the contractor must be compliant with the contractor requirements of 10 CFR 850.39. The site occupational medical contractor is responsible for establishing and maintaining medical records.

6.31 Performance Feedback

Responsible contractors must conduct periodic analyses and assessments of the effectiveness of the Program.

- Monitoring activities
- Hazard analysis
- Medical surveillance
- Exposure reduction and minimization
- Occurrence reporting data

NOTE: *These elements may be evaluated generically rather than specifically for beryllium.*

Additional self-assessments, and internally conducted surveillances, will be conducted in accordance with the schedule established by each responsible contractor. The results of assessment and surveillance reports will be communicated to line managers, planners, worker protection staff, workers, and other applicable organizations. Self-assessments and surveillance reports that identify issues with the language/implementation of the Hanford Site CBDPP will be forwarded to the CBDPP Committee.

Whenever a contractor conducts a beryllium-related assessment or identifies a beryllium-related issue the contractor's technical representative shall ensure that copies of the assessment/issue identification reports completed in the previous year are provided to the CBDPP Committee. At least annually, the CBDPP Committee shall review received documents and determine whether issues are identified that require changes or clarification to the CBDPP. If needed changes are identified, those changes shall be included as part of the annual update to the CBDPP.

7.0 REFERENCES

10 CFR 850, "Chronic Beryllium Disease Prevention Program," *Code of Federal Regulations*.

10 CFR 851, "Worker Safety and Health Program," *Code of Federal Regulations*.

29 CFR 1910, "Occupational Safety and Health Standards," *Code of Federal Regulations*.

DOE/RL-92-24, 2001, *Hanford Site Background: Part 1, Soil Background for Nonradioactive Analytes,* U.S. Department of Energy, Richland, Washington.

AIHA, 2006, *A Strategy for Assessing and Managing Occupational Exposures, Third Edition,* American Industrial Hygiene Association, Fairfax, Virginia.

ASTM D7144-05a, 2005, "Standard Practice for Collecting Surface Dust by Micro-vacuum Sampling for Subsequent Metals Determination," American Standard Testing Methods, Committee D22, West Conshohocken, Pennsylvania.

ANSI Z535.1, 2006, *Safety Color Code,* American National Standards Institute, New York, New York.

RRD 005: CONTRACT NO. DE-AC06-96RL13200 − RICHLAND REQUIREMENTS DOCUMENT (RRD) 005, REVISION 1, WORKER SAFETY, July 27, 2007, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

APPENDIX A: Beryllium Communications Plan

The following process describes the plan for communications of beryllium-related subject matter at the Hanford Site. This document describes the process used to increase worker awareness of the contents of the Hanford Site Chronic Beryllium Disease Prevention Program and other sources of beryllium information beneficial to Hanford site personnel and the public. The purpose of this plan is to assure that beryllium-related subject matter communications receive timely stakeholder participation in review of factual content, verification, targeted audiences, program impacts, and lessons learned. This includes but is not limited to communicating the results of beryllium-program related assessments to workers, line managers, planners, safety and health staff, the Hanford Beryllium Awareness Group (BAG), the Hanford Atomic Metal Trades Council (HAMTC), Central Washington Building Trades Council, the Hanford Advisory Board (HAB), the CBDPP Committee, and other stakeholders as required by the Hanford CBDPP.

This Plan is designed to utilize communications resources and programs in-place at Hanford. A Hanford Site Communications sub-committee, called the *Beryllium Communications Subcommittee*, has been created and is chaired by a representative of DOE-RL's Office of Communications and External Affairs. This is a subcommittee of a standing committee of Hanford Site Communications organizations, not the CBDPP Committee. This subcommittee is responsible for handling communications regarding beryllium that need to be sent out to the Hanford Site. Nothing in this action supersedes other standing communications resources such as groups established for developing "Lessons Learned," company safety alerts, or special internal communications of contractors; however, it is intended to use such resources for the purpose of disseminating beryllium related information effectively.

The *Beryllium Communication Subcommittee* is composed of the chair plus a designated "beryllium cognizant" representative and alternate of each prime Hanford Contractor's communications group. That sub-committee shall be responsible for assuring beryllium communications receive the beryllium stakeholder input and review described herein.

Urgent communications may be handled by the following individuals as representatives of the entire CBDPP Committee and *Beryllium Communications Subcommittee*:

- *Beryllium Communication Subcommittee* Chair or alternate
- CBDPP Committee Chair or Co-Chair as alternate
- CBDPP HAMTC Representative or alternate
- BAG Committee Chair or alternate
- CBDPP Building Trades Representative or alternate
- Hanford Site designated Risk Communicator or alternate

The Beryllium Communications Plan process is outlined on the following page.

Site Wide Process for Beryllium Communications:

Communication from CBDPP Committee to *Beryllium Communication Subcommittee*:

1. CBDPP Committee receives/identifies an item that requires communication to site personnel and/or off-site stakeholders.
2. CBDPP Committee sends a request to the *Beryllium Communication Subcommittee* stating what needs to be communicated, the urgency of the communication, and the known groups that need to receive the communication.
3. *Beryllium Communications Subcommitte*e reviews the request, determines how best to send the communication, ensures necessary audience and reviewers are identified and included, and when best to send the communication.
4. *Beryllium Communications Subcommittee* sends details of communication (final draft, methodology, list of recipients, etc.) back to the CBDPP Committee for approval.
5. CBDPP Committee approves final draft of communication and sends approved communication back to the *Beryllium Communications Subcommittee*.
6. *Beryllium Communications Subcommittee* sends out the communication to specified groups (i.e., Site-wide, company-wide, etc.). The *Beryllium Communications Subcommittee* provides documentation to the CBDPP Committee that the communication has been completed.

Communication from *Beryllium Communication Subcommittee* to the CBDPP Committee:

1. *Beryllium Communication Subcommittee* receives item involving Beryllium that they determine requires a need for a communication out to the site.
2. *Beryllium Communication Subcommittee* sends the item to the CBDPP Committee to verify what needs to be communicated, the urgency of the communication, and the known groups that need to receive the communication.
3. CBDPP Committee verifies details of the communication and sends details back to the *Beryllium Communication Subcommittee*.
4. *Beryllium Communications Subcommittee* sends details of communication (final draft, methodology, list of recipients, etc.) back to the CBDPP Committee for approval.
5. CBDPP Committee approves final draft of communication and sends approved communication back to the *Beryllium Communications Subcommittee*.
6. B*eryllium Communications Subcommittee* sends out the communication to specified groups (i.e., Site-wide, company-wide, etc.). The *Beryllium Communications Subcommittee* provides documentation to the CBDPP Committee that the communication has been completed.

APPENDIX B: Outreach to Former Workers on Beryllium Issues

The CBDPP Committee will coordinate outreach on beryllium issues to former workers at safety expos, State of the Site meetings, and other DOE sponsored events. Beryllium outreach includes:

- Soliciting information on past beryllium usage on the Hanford Site
- Publicizing the existence of the former worker medical surveillance program
- Providing information on former worker assistance programs

During outreach at DOE sponsored events, former workers may be interviewed on-the-spot using the Former Worker Interview form or contact information may be collected using the *Former Workers With Information Regarding Beryllium Use at Hanford* form (form A-6006-376) or other collection method so that an interview can be scheduled at a later time.

While it is expected that interviews will normally be documented on the *Former Worker Interview* form (form A-6006-375), use of the form is not necessary so long as the interview results are documented. If a former worker prefers to remain anonymous, documentation of the former worker's name and contact information is not required.

If a former worker has information and is unsure of the whether the information is classified or otherwise controlled, an interview can be arranged with a derivative classifier to determine the information's classification status. Even if the information is classified, the derivative classifier can work with the former worker to scrub the information of the classified elements. Because the critical information is where beryllium was previously used, removing potentially classified data such as details regarding the size and shape of beryllium parts, specific usages of the beryllium material, and the specific alloys used won't adversely affect the usefulness of the data.

Completed Former Worker Interview forms (or other documented interviews) shall be made available to all Hanford Site CBDPP Committee members so that any information gathered can be incorporated into Beryllium Facility Assessments and/or Beryllium Hazard Assessment. The Mission Support Contractor shall be responsible for maintaining the record copies of the interviews.

In addition to coordinating outreach at DOE sponsored events, the CBDPP Committee will solicit information from workers and former workers. Possible communication methods include:

- Union newsletters
- Company newsletters
- Hanford web page
- Tailgate meetings
- EZAC meetings
- DOE communications

- Other DOE outreach activities
- Local fraternal organizations

APPENDIX C: Sampling Protocols for Beryllium-Affected Workers

Initial Characterization

The accessible areas of indoor work locations where beryllium-affected workers are routinely assigned shall be characterized using the process contained in Section 4.2 of DOE-0342-002. The survey unit shall consist of the worker's immediate work area. If characterization sampling has already been conducted for the work area as part of the standard characterization process, the contractor may take credit for that sampling in meeting this requirement.

The worker may request that surface sampling be conducted for any specific areas of concern at transient work locations. The project IH shall work with the worker to determine the appropriate surface sampling locations.

Project IHs shall work with beryllium-affected workers who routinely work outdoors to determine what (if any) surface sampling is appropriate. If it is determined that no surface sampling is appropriate, the project IH will document that fact in an email or memo to the employee and the employee's manager.

The initial characterization data shall be reported in accordance with Section 4.2.8 of DOE-0342-002. A copy of the report will be given to the affected worker.

Verification Sampling

Verification sampling of the accessible areas of indoor work locations where beryllium-affected workers are routinely assigned shall be conducted at least every three years using the process contained in Section 4.2 of DOE-0342-002. The survey unit shall consist of the worker's immediate work area. If verification sampling has already been conducted for the work area as part of the standard verification sampling process, the contractor may take credit for that sampling in meeting this requirement.

Sampling of the workers immediate work area shall be offered annually if the worker's routine work location is in a Beryllium Controlled Facility. If the worker declines the annual sampling, the project IH will document that fact in an email or memo to the employee and the employee's manager.

The verification sampling data shall be reported in accordance with Section 4.2.8 of DOE-0342-002. A copy of the report will be given to the affected worker.

Air Monitoring

Beryllium-affected workers shall be offered air monitoring to evaluate exposure on an annual basis. The affected worker may choose to have:

- Breathing zone sampling conducted
- Area monitoring conducted
- Representative sampling on a similarly exposed employee conducted
- No air monitoring conducted

If the worker chooses to have no air monitoring conducted, the project IH will document that fact in an email or memo to the employee and the employee's manager.

As with any other Hanford employee, beryllium-affected workers may request more frequent sampling in accordance with the Hanford Worker Bill of Rights.

Sampling Responsibilities for Multi-Contractor Work Sites

The responsibility for conducting sampling for beryllium-affected workers who work at locations controlled by a contractor other than their employer is summarized by the table below:

NOTE: *The Employer and Host Contractor responsibilities may be assigned per an inter-contractor agreement; all requirements of Appendix C (as well as the CBDPP as a whole) always apply.*

Beryllium-Affected Worker's Job Assignment	Employer Responsibilities	Host Contractor Responsibilities
Transient loaned labor (i.e., MSA craft personnel assigned to another contractor for a specific work activity)	Track sampling requirements for the affected worker Sample areas where the worker is routinely assigned Maintain copies of the worker's sampling data	Conduct sampling of transient work locations under the host's control if requested Provide copies of sample reports to the worker's employer
Long term assignment (i.e., MSA teamsters that report to the same CHPRC location each day)	Maintain copies of the worker's sampling data	Track sampling requirements for the affected worker Sample areas where the worker is routinely assigned Conduct sampling of transient work locations under the host's control if requested Provide copies of sample reports to the worker's employer
On-site service (i.e., Fire Systems Maintenance, soil & groundwater sampling, Vent & Balance)	Track sampling requirements for the affected worker Sample areas where the worker is routinely assigned Provide IH support to sample transient work locations Maintain copies of the worker's	Provide any support personnel required to conduct sampling of transient work locations under the host's control

Beryllium-Affected Worker's Job Assignment	Employer Responsibilities	Host Contractor Responsibilities
	sampling data	

Maintaining Confidentiality of Affected Workers

IH/IHTs shall take the following steps to maintain the confidentiality of affected workers:

- Characterization/verification sampling plans and characterization/verification sampling reports shall not mention the name of the affected worker whose area is being sampled
- If the area being sampled could identify the affected worker (i.e., an office that houses a single person) the sampling plan and sampling report shall state that the sampling was in response to an employee request
- If questioned why the sampling is being conducted the IH/IHT shall either state that it routine characterization/verification sampling or that it is in response to an employee request.

Issue Resolution

If the project IH and the beryllium-affected worker cannot agree on the appropriate sampling, they shall attempt to resolve the issue working with the manager of the worker and the project IH. If the issue cannot be resolved by working with affected worker's management, the project IH and the beryllium-affected worker shall take the issue to the Hanford Site-Wide CBDPP Committee contractor representatives. If the issue cannot be resolved by working with the affected worker's contractor representatives, it shall be elevated to the full Hanford Site-Wide CBDPP Committee.

APPENDIX D: Configuration Control

The CBDPP Committee recognizes that revisions to DOE-0342, the *Hanford Chronic Beryllium Disease Prevention Program (CBDPP)* Plan, and its implementing procedures will be required to adjust, clarify, or augment programs and processes to ensure usability, clarity, and compliance. Revisions or changes to DOE-0342, or any procedure that implements DOE-0342 requirements through direct reference in DOE-0342, must adhere to a defined and rigorous change control process. The Hanford CBDPP Committee will enforce the process defined within this section to ensure that such revisions receive appropriate review, approval and configuration control.

DEFINITIONS:
The following definitions are applicable to this configuration control process:

- A **Minor Change** shall be any change to DOE-0342 or any of its supporting procedures and their attachments or appendices that meets the following conditions:
  - Reformatting that does not alter the technical content; correcting grammar, typographical, or spelling; renumbering sections, pages, tables, figures, or attachments that do not affect the chronological sequence of work; changing the title or number of the document;
  - Updating organizational names or titles, provided organizational responsibilities are not changed;
  - Updating or changing reference citations where the technical requirements are equivalent or more rigorous; or
  - Clarifying language that does not introduce conflicting language, add, or change requirements.

- A **Major Change** shall be any change to DOE-0342 or any of its supporting procedures that does not conform to the definition of Minor Change, above.
- **NOTE***:* The CBDPP Committee recognizes that revisions may be presented that are not explicitly described in the definition of Minor Change, above. In such cases, the CBDPP Committee reserves the right to designate such changes as Minor Changes through CBDPP Committee vote approval and concurrence by DOE-RL and DOE-ORP.
- A **Not Significant Change** shall be any change that doesn't significantly impact how the CBDPP is implemented in the field. All Minor changes are considered to be Not Significant changes. While most Major changes will also be Significant changes, certain Major changes may be deemed as Not Significant. Changes determined to be Not Significant only require concurrence by DOE-RL and DOE-ORP representatives.
- A **Significant Change** shall be any change that impacts how the CBDPP is implemented in the field. Significant changes will normally require additional training of workers to implement. Significant changes require formal approval from the Managers of the RL and ORP field offices. DOE-RL and DOE-ORP have the sole authority to determine whether a Major change is also a Significant change.

Minor changes to documents, such as editorial corrections, do not require the extent of review and approval required for Major changes. Minor changes shall be specified, and documented within the revision process, as defined in the following paragraphs. The Hanford CBDPP Committee Chair and Co-Chair will approve Minor changes to DOE-0342 and any of its explicitly designated implementing procedures, with concurrence by DOE-RL and DOE-ORP representatives.

Major changes to documents affecting the technical bases established in DOE-0342 or procedures that explicitly support the implementation of DOE-0342 shall be reviewed and approved by the Hanford CBDPP Committee and the same organizations that performed the original review and approval, unless other organizations are specifically designated (i.e., those specifically affected by the change). The Hanford CBDPP Committee and any other reviewing organization(s) shall have access to pertinent data or information upon which to base their approval. Specifically designating other organizations is permitted in cases where organizational responsibilities and authorities have changed or review/approval requests are no longer valid. Once the CBDPP Committee and other reviewing organizations have approved the document, the document shall go to RL/ORP for review and determination of significance.

DOE-0342 CHANGE CONTROL PROCESS:

1. The Hanford CBDPP Committee shall be designated as the *Technical Authority* for DOE-0342 and all of its directly referenced implementing procedures. Site-Wide Standards shall be designated as the *Owner* of procedures that support the implementation of DOE-0342. DOE-0342 and implementing procedures explicitly invoked by DOE-0342 that define processes, specify requirements, or establish design shall be identified, prepared, reviewed, approved, issued, revised and used in accordance with this process.
2. The Hanford CBDPP Committee shall review any revisions of DOE-0342 and of its supporting procedures, including their associated attachments and appendices for adequacy, completeness, and correctness before approval and release by the CBDPP Committee. After approval by the CBDPP Committee, the revised document shall be distributed for required approval signature and released through the Site-Wide Standards organization.
3. Major changes are any changes that do not meet the criteria of Minor changes, excepting the notation within the definitions of this section. Major changes to DOE-0342 and its associated implementing procedures shall be reviewed and approved by the same organizations that performed the original review and approval, unless other organizations are specifically designated. The reviewing organization shall have access to pertinent data or information upon which to base its approval. Specifically designating other organizations is permitted in cases where organizational responsibilities and authorities have changed, or review/approval requests are no longer valid.
4. Minor changes to DOE-0342 and its associated implementing procedures, such as editorial corrections; do not require the extent of review and approval required for Major changes. Minor changes shall be specified, and their bases documented through the use of a Resolution Form or Document Change Revision Notice. Resolution Forms and/or

Documented Change Revision Notices shall be maintained within the change control systems defined below.

5. Revisions to DOE-0342 shall be accomplished with associated revision numbers. Not Significant changes to DOE-0342 will require a Minor Revision number modification (e.g., Not Significant revisions to Revision 1 would be denoted as Revision 1a, 1b, etc.). Significant changes to DOE-0342 will require a Major Revision number modification (e.g., a Significant revision to Revision 1 would be denoted as Revision 2).
6. Site-Wide Standards shall maintain all revisions of DOE-0342 and any explicitly identified implementing procedures for configuration control purposes, along with change summaries that define the reasons and bases of the change(s). The process for distribution of DOE-0342 and its associated implementing procedures shall ensure the latest approved revisions are available to the personnel using these documents, and that appropriate notices and documents are posted with notice on the Hanford Site-Wide Standards and Hanford Onsite Contractors' procedure pages. Past revisions shall be removed from the same locations. All retired revisions and their associated change notices (including the notice that retired the document) will be maintained in electronic format by both the Site-Wide Standards organization and by the recording secretary of the CBDPP Committee. Electronic copies of superseded or canceled controlled documents shall be identified and maintained as records for their specified retention period.

APPENDIX E: Assessing, Documenting & Reporting Beryllium Exposures Associated with Radioactivity

Throughout the Department of Energy (DOE) complex, operations involving activities where beryllium and radiological materials are used in concert with each other have been routine. This co-mingling of beryllium and radiological materials can provide the opportunity to gather and evaluate additional information about beryllium exposures or beryllium contamination levels.

In many cases, the number of variables is too great to effectively bound the beryllium contamination using radiological contamination data. When it is appropriate to associate beryllium with radiological contamination, the following steps shall be taken:

1. A Technical Evaluation (TE) shall be completed that documents the assumptions, limitations, and calculations used to determine the bounding values for the radiological contamination. The TE shall be compliant with the requirements for a Technical Evaluation (also called a Technical Basis Document) contained in the contractor's Radiation Protection Program. As part of the bounding values, the TE shall document the radiological contamination values that would be associated with 0.2 µg Be/100 cm^2 of surface contamination and 0.1 µg Be/m^3 of airborne beryllium.
2. The Project for which the TE applies shall define limits for radiological contamination. These radiological limits shall correspond to no more than 0.02 µg Be/100 cm^2 of surface contamination and 0.01 µg Be/m^3 of airborne beryllium. The project shall develop response plans that document the necessary steps to be taken in case the limits are exceeded. These response plans shall include beryllium surface and air sample requirements.
3. In the event of an airborne release of radiological contamination that triggers a Continuous Air Monitor (CAM) alarm, the Project shall calculate the theoretical concentration of beryllium that was present in the air. If the theoretical concentration exceeds 0.01 µg Be/m^3, written notification of the theoretical beryllium exposure shall be provided to all employees who were present in the airspace at the time of the alarm. In addition, each employee shall also receive a summary of any beryllium monitoring (surface and/or air) that was conducted in response to the CAM alarm. Copies of the notifications shall also be sent to the Site Occupational Medical Provider for inclusion in each employee's medical records.

   NOTE: *Because CAM alarms may be caused by power spikes and equipment issues, the notifications are only required in the event that the CAM alarm is determined to have been caused by a radiological release and the theoretical concentration exceeds 0.01µg Be/m^3.*

APPENDIX F: Requirements for Conducting Beryllium Work

1. Prime contractors shall have formal, documented agreements for inter-contractor work planning and work control that address beryllium work activities. These agreements shall identify roles and responsibilities for:
   - Work planning and/or work package development
   - Assignment of the field work supervisor
   - Delegation of work release authority and acceptance authority
   - Pre-job briefings
   - Identifying qualifications (Training & Medical)

   While facility owners are responsible for evaluating the impacts of work scope and establishing location-specific requirements, they are not responsible for the technical oversight of work activities managed by other prime contractors**.**
2. The Contractor shall have a process that ensures all of the following, at a minimum:
   - Multiple work activities in a Beryllium Controlled Area (BCA) and/or Beryllium Restricted Area (BRA) are compatible with one another
   - Beryllium Work Permit (BWP) requirements are compatible with other work permit requirements used in a BCA/BRA (e.g., Radiological Work Permit, Asbestos Work Permit)
   - Beryllium worker training and medical clearances are verified prior to commencing work
   - Personal protective equipment (PPE) requirements for beryllium activities are compatible with requirements for other hazards (asbestos, radiological, lead, etc.)
   - Step off pad entry/egress protocols for beryllium work activities are documented
3. Each contractor shall maintain work control processes that utilize hazard analyses, which identify and evaluate beryllium hazards and establish applicable controls. Examples of process documentation include:
   - Job Hazard Analysis (JHA), Job Safety Analysis (JSA), Automated Job Hazard Analysis (AJHA), or equivalent
   - Beryllium Hazard Assessment (BHA)
   - Beryllium Work Permit (BWP)
   - Technical Evaluations
   - White Papers
   - Characterization Reports
4. The contractors hazard analysis process (JHA, JSA, AJHA or equivalent) shall identify beryllium as a hazard for the following:
   - All work in a BCA
   - All work in a BRA
   - Intrusive activities in an uncharacterized Beryllium Suspect Area (BSA)
   - Intrusive activities in equipment and/or systems labeled as Internal Beryllium Contamination

- Intrusive activities in equipment and/or systems labeled as Potentially Internal Beryllium Contamination
- Intrusive activities in areas, equipment and/or systems labeled for Fixed Beryllium Contamination

5. When the hazard analysis process identifies a beryllium hazard, the BHA and BWP will be used to identify the appropriate controls.
6. The BHA and BWP shall be included with the work control documents.
7. Instructions necessary to properly implement the controls identified on the BWP shall be incorporated into the work control documents.
8. Prior to the start of a beryllium work activity, the following shall be performed in a pre-job briefing:
   - Review the BWP
   - Discuss the location and compatibility of beryllium work activities that may affect co-located, adjacent or other nearby work activities
   - Discuss potential beryllium upset conditions, how they may occur, and steps that shall be taken in response to such situations
   - Discuss lessons learned from past beryllium evolutions, as applicable
9. If a beryllium-related issue is identified during an activity, work will be placed in a safe configuration, and a review shall be performed prior to work continuing. The review may be used to address a change in conditions or to ensure that the BHA/BWP or other work control documents are still valid. The review shall be documented on the work record, by a change to the BHA/BWP, or on other work control documents.
10. Informal and formal post-job reviews are conducted to solicit feedback to improve work, discuss observed issues, provide opportunities for improvement, or to identify good practices observed during the work activity. These reviews may take place at the end of an entire job, or following a discrete part of a job. The level of risk and complexity associated with an activity determines the detail and formality required for the post-job review.

- An informal post-job review is generally a discussion between the supervisor and the work team. At a minimum, an informal post-job review is required for all activities performed in a BRA. Documentation of the informal post-job review may be recorded in the work record but is not required to be captured on a formal post-job review record.
- A formal post-job review includes team members and SMEs discussing issues that arise during the job that are significant enough to warrant in-depth discussion. Formal post-job reviews may be conducted immediately following an issue or at the end of the job depending on the significance of the issue. These reviews shall be conducted and documented using existing contractor processes. The following are examples of situations requiring formal reviews:
  - Beryllium work activities resulted in airborne beryllium above the Action Level
  - A significant beryllium related issue was identified or repeated issues occurred
  - Requested by an employee
  - The activity was a first time performance of complex beryllium work

APPENDIX G: Typical Personal Protective Equipment "Dress-Undress"

Single Pair Personal Protective Equipment (PPE)

- One set of disposable coveralls
- Inner disposable booties/canvas boots and outer coverings such as disposable booties/rubber overshoes
- A minimum of two pair of surgeon/nitrile gloves
- A full face air purifying respirator (APR) with HEPA/P100 filters, entrants may upgrade to a powered air purifying respirator (PAPR) hood with HEPA/P100 filters, as required.

NOTE: All openings are normally taped

Undress of Single Pair Personal Protective Equipment

1. Place all items to be removed from beryllium area on designated equipment laydown area.
2. Remove outer disposable booties/rubber overshoes, as applicable.
3. Remove outer gloves.
4. Remove respiratory protection, as applicable.
5. Remove all exposed tape.
6. Remove coveralls.
7. Remove inner disposable booties/canvas boots, as applicable, and then step onto step off pad.
8. Remove gloves and/or glove liners, as applicable.

Double Pair Personal Protective Equipment

Includes:

- Two sets of coveralls (outer pair shall be disposable)
- Inner canvas shoe cover and outer coverings such as disposable booties/rubber overshoes
- A minimum of two pair of surgeon/nitrile gloves
- A full face APR with HEPA/P100 filters, entrants may upgrade to a PAPR Hood with HEPA/P100 filters, as required.

NOTE: All openings are normally taped

Undress of Double Pair Personal Protective Equipment

1. Place all items to be removed from beryllium area on designated equipment laydown area.
2. Perform decon and undress, as applicable.
3. Remove outer disposable booties/rubber overshoes, as applicable.
4. Remove outer gloves.
5. Remove all exposed tape.

6. Remove outer coveralls.
7. Remove hood, as applicable.
8. Remove respiratory protection, as applicable.
9. Remove all exposed tape.
10. Remove inner coveralls.
11. Remove inner disposable booties/canvas shoe covers, as applicable, and then step onto step off pad.
12. Remove gloves and/or glove liners, as applicable.

ATTACHMENT 1: CBDPP Committee Charter

Attachment 1, Hanford Site Chronic Beryllium Disease Prevention Program (CBDPP) Committee Charter

The Hanford Site Chronic Beryllium Disease Prevention Program (CBDPP) Committee is established to serve as the advisory group providing consensus direction for the consistent administration and implementation of the CBDPP, herein called the Program. The participating contractors and organizations are responsible for appointing representatives to the committee.

The Department of Energy (DOE) Richland Operations Office (RL), DOE Office of River Protection (ORP), and affected Contractors acknowledge that a joint committee provides the best approach for implementing a consistent, effective, and compliant interpretation of requirements for the Program. The parties agree to cooperate in a teambuilding manner to ensure that the full intent of the Program is met and will be responsibly carried out by their respective organizations.

The Hanford Beryllium Awareness Group (BAG) Chairperson and designated Hanford Atomic Metal Trades Council (HAMTC) representative shall meet on an as needed basis with the DOE-RL and DOE-ORP Deputy Managers to discuss any concerns with the CBDPP Committee and its implementation.

1.0 Mission

The mission of the CBDPP Committee is to ensure consistent and standard application of the Program to promote and maintain a safe work environment. The Committee will achieve this consistent approach through sharing best practices, lessons learned, and matters that affect multiple contractors to foster continuous improvement.

2.0 Committee Structure/Membership/Qualification

The Committee shall be comprised of two primary representatives each from the following prime contract to the DOE at Hanford.

- Mission Support Contract (MSC)
- Plateau Remediation Contract (PRC)
- River Corridor Closure Contract (RCCC)
- Tank Operations Contract (TOC)

One representative shall be the contractor's Technical Representative for the Program as determined by their contractor; the second representative shall be a HAMTC representative (as appointed by the HAMTC President or delegate). The HAMTC representatives should, when possible, be comprised of two beryllium affected workers and two non-beryllium workers. These members shall be selected through a collaborative process between HAMTC and the BAG.

In addition, one representative each from the following organizations will be appointed to serve on the Committee:

- Central Washington Building and Construction Trades Council (CWB&CTC) (as approved by the Union President or delegate)
- BAG
- HAMTC/Employee Health Advocate (EHA)

- AdvanceMed Hanford (AMH)

These representatives comprise the voting membership. An alternate member shall be identified to serve during any absence of a primary representative. The alternate shall have the same authority as the primary representative.

Representatives from Volpentest HAMMER Training and Education Center, Training Department (HAMMER) shall attend meetings as non-voting members to address matters pertaining to their respective area of responsibility. An alternate member shall be identified to serve during any absence of a primary representative.

A Committee member's length of duty may be indeterminate, but rotation of representative assignments is encouraged by all parties.

A chair and co-chair shall be elected by a simple majority of the voting membership of the Committee every two years. The chair and co-chair may be reelected to their respective positions.

Meetings shall be open to others to observe and to give their organizations' impact, perspectives, and technical advice for consideration of the voting body, however, participation in consensus decisions resides solely with the Committee members described herein. The Committee has the authority to develop sub-committees and invite ad hoc participants as needed.

Representatives of RL and ORP shall be invited to participate at each meeting as non-voting attendees.

The MSC shall provide a recording secretary for the Committee. The recording secretary is a non-voting position that provides administrative support to the chairperson. A facilitator shall be provided by the MSC as requested by the Committee.

3.0 Functions of the CBDPP Committee

The functions of the Committee shall be:

- Assist the MSC with the maintenance of the written Program
- Communicate and submit Program changes to RL and ORP through the MSC
- Maintain the Committee charter and review annually
- Review and verify that training is consistent and appropriately covers the content of the Program
- Evaluate trends in performance and recommend actions for improvement
- Review beryllium related events, issues, and lessons learned as appropriate
- Ensure distribution of lessons learned as necessary
- Maintain communication with the Contractor Beryllium Committees and collaborate to resolve worker level issues, concerns, or events in a way that maintains site-wide consistency
    - Since the core function of a Site-wide Standard is “worker protection,” it is imperative to have a structure that fosters and encourages input and feedback

from the working level. Affected contractors will convene a working level committee (also referred to as a lower tier committee) to discuss issues, concerns, or events that occur in the area of beryllium within their organizations. These working level committees shall include equal representation of bargaining unit (as appointed by the bargaining unit president or delegate) and non-bargaining unit employees and ensure good communication up through each group's representative(s) on the CBDPP Committee.

- Evaluate and recommend resolution for issues/disputes pertaining to the Program
  - Issues shall not include any actions regarding applicable Collective Bargaining Agreements
- Recommend topics/information for communication to the workforce
- Provide Program status to the Senior Management Team (SMT) and DOE management when requested

4.0 Roles and Responsibilities

4.1. Chair Roles and Responsibilities

- Schedule meetings
- Facilitate meetings in an orderly fashion
- Limit disruptions
- Ensure meeting agendas are prepared
- Ensure meeting minutes are taken and comments are documented
- Function as a point of contact and spokesperson for the Committee
- Interface with other site-wide standard committees as necessary
- Ensure action item list is maintained and members complete their assignments in a timely manner
- Coordinate assignments of sub-committee(s)

4.2.Co-Chair Roles and Responsibilities

- Act as the Chair when the Chair is absent
- Perform roles and responsibilities as delegated by the Chair

4.3. Member Roles and Responsibilities

- Provide the chairperson with the identity of an alternate Committee member who is designated as the organizational representative
- Attend and participate in meetings when scheduled or notify their alternate when unable to attend
  - Alternates are responsible to attend and participate in meetings when the primary cannot attend
  - If the primary and alternate are both unable to attend, the Chair shall be notified
- Foster communication between the Committee and affected organizations relative to issue identification, interpretations, and consensus resolution
- Work in good faith toward consensus on issues without compromising safety or Program compliance

- Maintain a safety and requirements focus when addressing issues; avoid facility, craft, job function, or contractor biases when participating in discussions or voting
- Maintain current knowledge of the requirements of the Program
- Participate in issue discussions representing respective organization
- Bring up issues or speak in discussions only after being recognized by the chairperson
- Listen respectfully and refrain from interrupting others
- Refrain from disruptive side conversations

5.0 Meetings

- Meet regularly as necessary, but no less than quarterly, via scheduled meetings
- Hold special meetings to address urgent or emerging issues
- Record and retain meeting minutes and action items, and distribute to the membership, alternates, and DOE
- Document and maintain record copies of voting decisions

6.0 Meeting Agenda

- The chairperson shall ensure an agenda is prepared for each meeting, using input from the membership, and forward a copy to all members, alternates, and DOE in advance of the meeting time and date
- Action items shall be assigned and tracked

7.0 Quorum and Voting

The Committee shall be considered to have a quorum when all Committee members who are eligible to vote (or their designated alternates) are present. One or more dissenting votes from the voting membership will be cause for an issue to elevate into a secondary phase of discussion and comment.

8.0 Secondary Phase of Discussion and Issue Resolution

Matters not agreed upon by the Committee through the initial voting process shall be elevated to the secondary phase of discussion. This phase may include up to two additional meetings. Further discussion/investigation beyond the two additional meetings may be conducted if there is unanimous agreement by the Committee.

If consensus cannot be reached by the Committee, the issue may be elevated to the SMT and/or DOE. The SMT shall provide a status of their resolution process to the Committee at scheduled meetings.

John G. Lehew III, President and Chief Executive Officer
CH2M Hill Plateau Remediation Company

J. Frank Armijo, President and General Manager
Mission Support Alliance, LLC

M.N. Brosee, President
Washington Closure Hanford LLC

C.G. Spencer, President and Project Manager
Washington River Protection Solutions LLC

David P. Davis, President
Central Washington Building and
Construction Trades Council

David E. Molnaa, President
Hanford Atomic Metal Trades Council

George C. Baxter, Principal Manager
AdvanceMed Hanford

Mark W. Fisher, Chairman
Beryllium Awareness Group

ATTACHMENT 2: ***ATTACHMENT REMOVED PER RESOLUTION FORM***

ATTACHMENT 3: ***ATTACHMENT REMOVED PER RESOLUTION FORM***

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ATTACHMENT 4: Hanford SOMC Beryllium Medical Support Plan

HPMC OCCUPATIONAL MEDICAL SERVICES

Beryllium Medical Support Plan

OMS-CS-135A1	Effective:	
	Supersedes:	8/25/10
	Revision #:	11
	Old #:	AMH-MP-MP120
☑Approved By:	Signature	Date
Principal Manager, Douglas Kollasch	D J Kollasch	10/15/2012
☑Author:		
Site Occupational Medical Director, Karen Phillips, MD MPH FACOEM	K Phillips MD	10/15/12

Note: Before each use, check HPMC OMS intranet to ensure this copy is current.

Table of Contents

Beryllium Medical Support Plan

OMS-CS-135A1 Published:

1 Introduction

1.1 Purpose

This plan defines roles and responsibilities of the Site Occupational Medical Contractor (SOMC) for the medical elements of the Chronic Beryllium Disease Prevention Programs (CBDPP).

1.2 Applicability

This plan is applicable to all current Hanford workers provided services under the U.S. Department of Energy (DOE) Occupational Medical Services Contract at Hanford No. DE-EM 0002043, including those with past or present, current or potential, exposure to beryllium at any DOE site.

1.3 Implementation

Effective upon publication

1.4 Definitions

Generally, the same definitions used in 10 CFR 850 (The Rule) are used in and apply to this Medical Support Plan (MSP).

The SOMC uses "Beryllium-associated worker" as defined in §850.3, as the governing definition of current workers who have in the past, or currently have the potential for exposure to beryllium. At Hanford, a subset of this broad-based definition has been developed to further classify workers according to their health status or job requirements. These definitions are described below:

- *Beryllium affected worker* - are those who are affected (medically) by beryllium exposure, e.g. beryllium sensitization, chronic beryllium disease (CBD), or a medical condition otherwise associated with beryllium exposure.
- *Beryllium worker* - A Hanford Site-specific term that refers to a current worker who has been designated in the Hanford Site Employee Job Task Analysis (EJTA) System by his/her manager to be available to perform work that is anticipated to involve exposure to airborne beryllium at or above the employer designated action levels. It is a subset of "Beryllium-Associated Worker" as discussed in 10 CFR 850.3.

In addition, other terms used in the MSP are:

- *Employee Job Task Analysis (EJTA)* - The Hanford Site database to which worker-specific input is provided by the employee, the manager, and the company Industrial Hygienist (IH), that defines the work activities, hazards, and exposures (physical, chemical, biological) to which the worker may be subjected or exposed.

2 Project Definition

The SOMC provides medical surveillance as defined in the Hanford Site CBDPP and provides support to Site contractors in meeting the requirements of 10 CFR 850 for beryllium as the SOMC to DOE. The SOMC's Medical Director is the designated Site Occupational Medical Director (SOMD) and is responsible for administering the beryllium medical surveillance program. A qualified physician will be appointed the SOMC's medical beryllium manager by the SOMD.

The Beryllium Case Manager assists in coordinating contractor procedures as described in the individual contractor appendices with the medical surveillance program. The SOMC coordinates the self-identification process to identify workers who may have been exposed to beryllium.

The SOMC administers the beryllium surveillance programs using information provided by the DOE contractor which includes:

- A list of beryllium-associated workers
- A baseline and updated inventory of beryllium-listed facilities
- Hazard assessments and personal air monitoring (exposure) data including tasks and activities
- Types of personal protective equipment used

2.1 Beryllium Program Surveillance Programs

The SOMC provides two beryllium medical surveillance programs. In addition one service is provided for exposure as described in section 2.1.3. The surveillance programs incorporate the required elements of the exams specified by 10 CFR 850.

2.1.1 Beryllium Worker Program

This program provides medical surveillance for current beryllium workers. Their employer enrolls participants through the EJTA process. The program consists of a baseline evaluation followed by annual periodic evaluations.

2.1.2 Beryllium Voluntary Program

This program provides periodic medical surveillance for those who may have been exposed to beryllium at any DOE site in the past. Enrollment and related testing, including the Beryllium Lymphocyte Proliferation Test (BeLPT), are voluntary. Participants are identified through one or more of the following processes:

- Completing the Hanford Site Beryllium Questionnaire
- Completing the DOE Historic Health Exposure Questionnaire
- Contacting the Beryllium Case Manager
- Recommendation from their employer
- Recommendation from an SOMC licensed medical staff member
- Self-identification

Workers are offered enrollment when they are removed as a beryllium worker by their EJTA. Workers may elect to remain enrolled in a beryllium program for the duration of their eligible Hanford employment. If an employee declines further participation, he/she may request participation again at any time. The examination consists of periodic evaluations every three years or as medically indicated.

2.1.3 Exposure to Beryllium
This exposure and unusual event exam is for workers who have been occupationally exposed to beryllium in an emergency/acute situation. Based on the results of the examination, the worker is placed in a beryllium surveillance program and is offered referrals to Behavioral Health Services and the Beryllium Case Manager.

2.2 Medical Evaluations

The SOMC licensed medical providers perform beryllium evaluations based on medical protocols. Medical evaluations will be conducted in accordance with, but not be limited to, 10 CFR 850.34(b). When appropriate, at no cost to the worker, an external provider, who has experience and knowledge in diagnosing and treating beryllium related medical conditions, may be consulted as an extension of the medical surveillance program.

2.2.1 Review of Initial (Baseline) Medical Evaluation
The SOMC acts on behalf of the responsible employer in performing initial and periodic beryllium medical surveillance evaluations and consultations. For beryllium-associated workers enrolled in a beryllium medical surveillance program, the SOMC also facilitates the additional options for further review.

2.2.2 Records Review
The SOMC follows medical criteria to determine when further evaluations are needed and offers medical referral. If a worker is not offered a medical referral, but feels they need further beryllium evaluation, he/she may request the SOMC to facilitate a records review with a nationally recognized beryllium disease diagnostic facility. The SOMC will provide the medical records and ask for an opinion as to whether or not referral is appropriate. The SOMC will abide by the recommendation of the external organization.

2.2.3 Alternate Physician Determination
The worker may choose to have an Alternate Physician Determination in lieu of Multiple Physician Review. The requirements for Alternate Physician Determination are defined in 10 CFR 850.34(d).

The responsible employer [SOMC on behalf of the contractor] and the beryllium-associated worker or the worker's designated representative may agree upon the use of any alternate form of physician determination in lieu of the Multiple Physician Review process, so long as the alternative is expeditious and at least as protective of the worker.

2.2.4 Multiple Physician Review

The requirements for Multiple Physician Review are defined in 10 CFR 850.34(c).
The responsible employer [Contractor/SOMC] must establish a Multiple Physician Review process for beryllium-associated workers that allows for the review of initial medical findings, determinations, or recommendations from any medical evaluation conducted pursuant to paragraph (b) of this section.

1. If the responsible employer [SOMC to act on behalf of the contractor] selects the initial physician [SOMC and Outside Expert] to conduct any medical examination or consultation provided to a beryllium-associated worker, the worker may designate a second physician to:
    a. Review any findings, determinations, or recommendations of the initial physician [SOMC and Outside Expert]; and
    b. Conduct such examinations, consultations and laboratory tests, as the second physician deems necessary to facilitate this review.
2. The responsible employer [SOMC to act on behalf of the contractor] must promptly notify a beryllium-associated worker in writing of the right to seek a second medical opinion after the initial physician [SOMC and Outside Expert] provided by the responsible employer [SOMC/Contractor] conducts a medical examination or consultation.

2.2.5 Multiple Physician Review Process

Note: At any time throughout the Multiple Physician Review process, a worker may contact a Beryllium Health Advocate for assistance.

1. The Multiple Physician Review process starts with the responsible employer [SOMC acting on behalf of the contractor], notifying a worker in writing of the initial physician medical findings, determinations, or recommendations and the right to seek Multiple Physician Review. The worker then receives the written notice which explains the process and coordination for receipt of beryllium related findings, determinations and recommendations.

2. The worker must notify the responsible employer [SOMC] in writing of his/her intent to seek Multiple Physician Review within 30 days of receiving the written notice from SOMC or receipt of the initial physician's written opinion, whichever is later.

3. The SOMC may offer and provide assistance upon the worker's request in selecting a 2nd physician.

4. If the worker does not accept the SOMC offer of assistance, then when the worker notifies the SOMC of his/her intent to seek Multiple Physician Review, he/she must also select and schedule an appointment with a second physician. If the worker does accept the SOMC offer of assistance, then the SOMC will facilitate and assist the worker in

selecting and scheduling an appointment with the second physician after receiving notice of the worker's intent to seek Multiple Physician Review.**

5. The worker must attend the appointment with his/her selected second physician. The second physician will review the worker's records, perform a physical exam, conduct testing and anything else determined necessary by the second physician.

6. The second physician issues findings, determinations and recommendations to the worker and the SOMD. The worker and the SOMC will work together to obtain this information.

7. If the findings, determinations, or recommendations of the second physician concur with the initial physician, the process has ended. If the findings, determinations, or recommendations of the second physician differ from those of the initial physician, then proceed to step 8.

8. The worker, responsible employer [SOMC] and the second physician make efforts to resolve any disagreement.

9. If the responsible employer [SOMC], the worker and the second physician resolve the disagreement then the process has ended. If the disagreement is not resolved, proceed to step 10.

10. The responsible employer [SOMC], the worker and the second physician designate a third physician.

11. The third physician reviews any findings, determinations, or recommendations of the other two physicians [SOMC/Outside Expert and second physician selected earlier in the process]; and conducts such examinations, consultations, laboratory tests, and consultations with the other two physicians [SOMC/Outside Expert and second physician selected earlier in the process], as the third physician deems necessary to resolve the disagreement among them.

12. The third physician issues (the worker and SOMD receive) findings, determinations, and recommendations of the third physician.

13. The SOMD must act consistently with the third physician's findings, determinations, and recommendations regardless if the third physician agrees with the other two physicians or not. However, if the worker disagrees with the third physician's findings, determinations, and recommendations, he/she may work with the SOMD to reach an agreement consistent with the recommendations of at least one of the other two physicians [SOMC/Outside Expert and second physician selected earlier in the process].

14. If the worker and SOMD can reach an agreement consistent with the recommendations of at least one of the other two physicians [SOMC/Outside Expert and second physician selected earlier in the process], then the process ends. If the worker and SOMD cannot reach an agreement consistent with the recommendations of at least one of the other two physicians, then the SOMD must act consistently with the third physician's findings, determinations, and recommendations thus ending the process.

**Note: It is important to note that 10 CFR 850.34(c) states that the responsible employer [SOMC for medical and Contractor for travel] may condition its participation in, and payment for, Multiple Physician Review upon the beryllium-associated worker informing the responsible employer and initiating steps to make an appointment with a second physician within 30 days after receipt of the notice to the right to seek Multiple Physician Review, or receipt of the initial physician's written opinion, whichever is later.

2.2.6 Other Referrals (Beryllium-related Medical Issues)

After the definitive diagnosis is made, beryllium-affected workers may require additional medical evaluation and/or testing. The SOMC coordinates medical referrals as needed or requested by any worker enrolled in a SOMC beryllium medical surveillance program. The process is consistent with already established medical referral processes used by the SOMC and the Hanford Site contractors. These referrals are based on medical necessity and appropriateness for the purpose of determining a medical diagnosis and are considered as an extension of the medical surveillance process. They may be arranged in conjunction with or separate from the previously discussed multiple physician review process.

2.3 Reporting

2.3.1 Reporting to the Responsible Employer

As required by 10 CFR 850.34(e), the SOMD will provide the responsible employer with a written, signed medical opinion (excluding non-affected workers under 2.1.2 Beryllium Voluntary Program). This report is provided within 10 working days of receiving all beryllium related results for that particular examination. Included in the report are:

- Medical diagnoses that are relevant to occupational exposure to beryllium or secondary effects of, or complications relating to, chronic beryllium disease that compromises the worker's ability to function in the workplace.
- A notification that all recommendations and test results have been communicated to the worker

The report will not include any specific records, findings or diagnoses that are not related to the medical conditions that may be affected by beryllium exposure.

2.3.2 Reporting to the Worker

The beryllium-associated worker meets with the SOMC examining provider to verbally review the results of all medical tests or procedures with an explanation of any abnormal findings, and receives a written medical opinion from the examining provider explaining beryllium-related

results, any positive findings and medical recommendations. The beryllium worker receives a copy of the written medical opinion letter that is sent to the employer. All reports are provided to the worker within 10 working days of receiving all beryllium-related results for that particular examination.

When a worker is determined to be beryllium affected, the Beryllium Case Manager, if desired by the employee, will coordinate a meeting among the SOMC staff, the worker, and IH or Safety personnel as appropriate. All available information will be reviewed in an attempt to determine where past exposures may have occurred and discuss future protective measures and accommodations if indicated.

2.3.3 Medical Removal Protection Benefits
10 CFR 850 and interpretive guidance from DOE Headquarters provide two separate pathways for initiation of medical removal benefits.

(1) A written medical opinion from the SOMD that an individual should be removed from further exposure to beryllium.
(2) A written medical opinion that secondary effects of, or complications relating to, chronic beryllium disease compromise the worker's ability to function in the workplace.

The SOMD will provide the responsible employer a written medical opinion with diagnosis of the worker as sensitized, CBD or a temporary restriction pending further evaluation. If the worker is a Beryllium worker, and there is a potential health risk associated with further exposure to beryllium, an immediate phone notification will be made to the employee and manager informing him/her of the employee status and recommend immediate implementation of the applicable parts of the CBDPP. The DOE approved CBDPP contains the necessary procedures and control levels to prevent future exposures to affected workers. If the diagnosis is temporary, it will be so specified in the medical opinion and a follow-up opinion will be made available once the diagnosis is either determined to be present or ruled out.

If, as a result of a medical evaluation(s) performed in accordance with 10 CFR 850.34, it is determined that an individual has either secondary effects of or complications relating to chronic beryllium disease that compromise the worker's ability to function in the workplace, the SOMD will provide this information in a written medical opinion. Where a contractor determines independent of a medical evaluation an affected worker is no longer able to perform the essential job functions for medical reasons, the contractor may request a work suitability evaluation and a written medical opinion. The contractor may then use the medical opinion to implement 10 CFR 850.35 as interpreted by DOE Interpretation D04-12-002, and specified in the contractor's CBDPP.

2.4 Medical Consent (§850.36)

The SOMC uses 10 CFR 850, Appendix A, "Chronic Beryllium Disease Prevention Program Informed Consent Form" to obtain consent of the worker scheduled for beryllium medical surveillance. The medical consent is obtained at the time of the medical evaluation (See Section 6.1 – CBDPP Informed Consent Form Sample).

The SOMC develops and maintains the "Beryllium Information Booklet" which is a summary of the medical surveillance program and information on program testing and examinations. The SOMC makes the "Beryllium Information Booklet" available on the SOMC website. One week before the first medical evaluation or procedure (or upon worker's request), the employer provides (or has provided) each worker with the "Beryllium Information Booklet." The booklet includes:

- Medical testing included in the monitoring program
- Explanation and risks of tests and examinations
- Type of data collected in the medical monitoring and epidemiology programs
- Where the data is kept and how it is used
- How confidential data is protected

2.5 Counseling (§850.37)

As part of the medical counseling process (§850.37(f) (3)), the medical provider furnishes information to the worker regarding the risks of exposure to beryllium and refers them to the CBDPP. This counseling and consultation, as well as the employee's acknowledgement of the same, is documented on the Beryllium Program Overview form. The contractor will provide additional counseling to meet the non-medical counseling requirements.

Counseling includes an explanation of the provisions and procedures of the medical surveillance program (§850.37(f) (1)), information about follow-up medical diagnostic evaluation and treatment options (§850.37(f) (2)), and the risk of continued beryllium exposure for sensitized workers and those with CBD (§850.37(f) (7)). The SOMC provides psychological counseling to sensitized workers and workers with CBD through the Employee Assistance Program (§850.37(f) (3)).

2.6 Recordkeeping (§850.39)

Records may be released for appropriate official purposes of DOE, National Institute for Occupational Safety and Health (NIOSH), Occupational Safety and Health Administration (OSHA), state health department, or Congress. Medical information without personal identifiers such as name, social security number, address, or phone number or other information that could be used to identify particular workers is provided to certain individuals such as DOE officials responsible for CBDPP, scientists and researchers working under DOE agreements, and the Oakridge Institute for Science and Education (ORISE).

The SOMC works cooperatively with Site contractors to analyze medical, job, and exposure data in order to identify workers or groups of workers potentially at risk for beryllium sensitization or CBD and working conditions that may contribute to that risk. The SOMC maintains a database of beryllium-associated workers including workers with previous exposure to beryllium (self-identified or identified by employer) and current beryllium workers (identified through the EJTA).

As the Beryllium Site Coordinator, the SOMC maintains the Hanford Beryllium Registry and submits encrypted information semi-annually to the DOE Office of Epidemiological Surveillance Studies within the Office of Environment, Safety and Health or designee, i.e., ORISE, to be included in the national beryllium registry. Personal identifiers are removed from any transmitted information.

3 Project Schedule

This program has been continuously used since inception of Occupational Health Services Contract No. DE-AC06-04RL14383, and is updated with new guidance, direction, and medical standards and considerations.

4 Roles and Responsibilities

4.1 Site Occupational Medical Contractor (SOMC)

The SOMC provides medical surveillance as defined in this MSP, which is provided as an attachment to the Hanford Site CBPDD and as a support to Site contractors in meeting the requirements of 10 CFR 850. The SOMC will administer a Memorandum of Agreement with each contractor that utilizes its services to clearly define roles and responsibilities pertaining to 10 CFR 850 and 851.

The SOMD is responsible for administering and determining the provisions of the medical surveillance program.

The SOMC Beryllium Case Manager assists in coordinating contractor procedures as described in the individual contractor appendices with the medical surveillance program. The SOMC coordinates the self-identification process to identify workers who may have been exposed to beryllium in the past.

4.2 Contractor

As the responsible employer, contractors have responsibility for determining all reasonable accommodations. They also have full discretion and responsibility for offering, considering, and providing medical removal plan benefits and all related elements, as specified in 10 CFR 850, including interpretation of 10 CFR 850 provided by DOE. Contractors supply the following to the SOMC:

- A list of beryllium-associated workers
- A baseline inventory of beryllium listed facilities

- Hazard assessment and exposure monitoring data, including past and current related duties of beryllium-associated workers as they pertain to beryllium exposure
- Records of beryllium exposure
- Types of personal protective equipment used
- A description of personal protective and respiratory protective equipment used in the past, present, or anticipated for future use

4.3 Department of Energy (DOE)

DOE provides oversight and direction of the SOMC medical programs. They also have approval over any Memorandum of Agreement between the SOMC and the Hanford Site prime contractors.

5 References

- 10 CFR 850. 1999.
- Occupational Medical Services Contract at Hanford No. DE-EM 0002043
- DOE Technical Standard: Beryllium Associated Worker Registry Data Collection and Management Guidance, DOE-STD-1187-2005, May 2005.
- DOE Interpretation D04-12-002

6 Sample Forms and Letters

6.1 Sample – Informed Consent Form

HPMC OCCUPATIONAL MEDICAL SERVICES

CHRONIC BERYLLIUM DISEASE PREVENTION PROGRAM INFORMED CONSENT FORM

I, _____, have carefully read and understand the attached information about the BeLPT and other medical tests. I have had the opportunity to ask any questions that I may have concerning these tests and my questions have been answered to my satisfaction.

I understand that the tests are confidential, but not anonymous. I understand that if the results of any test suggest a health problem, the examining physician will discuss the matter with me, whether or not the result is related to my work with beryllium. I understand that my employer will be notified of my diagnosis only if I have a beryllium sensitization or Chronic Beryllium Disease (CBD). My employer will not receive the results or diagnoses of any health condition not related to beryllium exposure.

I understand that, if the results of one or more of these tests indicate that I have a health problem related to beryllium, additional examinations will be recommended. If additional tests indicate I do have a beryllium sensitization or CBD, the Site Occupational Medical Director may recommend that I be removed from working with beryllium.

If I agree to be removed, I understand that I may be transferred to another job for which I am qualified (or for which I can be trained for in a short period) and where my beryllium exposure will be as low as possible, but in no case above the action level. I will maintain my total normal earnings, seniority, and other benefits for up to two years if I agree to be permanently removed.

I understand that if I apply for another job or for insurance, I may be requested to release my medical records to a future employer or an insurance company. I understand that the site occupational medical contractor will maintain all medical information relative to the tests performed on me in segregated medical files separate from my personnel files, treated as confidential medical records, and used or disclosed only as provided by the Americans with Disability Act, the Privacy Act of 1974, or as required by a court order or under the law.

I understand that the results of my medical tests for beryllium will be included in the Beryllium Registry maintained by DOE, and that a unique identifier will be used to maintain the confidentiality of my medical information. Personal identifiers will not be included in any reports generated from the DOE Beryllium Registry. I understand that the results of my tests and examinations may be published in reports or presented at meetings, but that I will not be identified.

Are you taking any of the following medications: oral steroid pills like prednisone or Medrol Dosepak, cancer or chemotherapy drugs, immunosuppressant medications like Enbrel, Remicade, Imuran or daily nonsteroidal anti-inflammatory medications like Naprosyn/naproxen, ibuprofen, Motrin, Celebrex? YES _____ NO _____

I consent to having the following medical evaluations if determined by the examiner to be needed (initial):

_____Physical examination concentrating on my lungs and breathing

_____Chest x-ray

_____Spirometry (breathing test)

_____BeLPT (blood test called the beryllium-induced lymphocyte proliferation test)

_____Other tests(s) (Specify): _____

Beryllium Voluntary Program -: I understand that this program is voluntary and I am free to withdraw at any time from all or any part of the medical surveillance program. I consent to the tests indicated above.

Patient Signature : _____ Date: _____

Beryllium Worker Program: In order to continue to perform this work I agree to participate fully in the requirements of the medical surveillance program including the tests indicated above.

Patient Signature : _____ Date: _____

I have explained and discussed any questions that the employee expressed concerning the BeLPT, physical examination, and other medical testing as well as the implications of those tests.

Print Name of SOMD or his/her Delegate: _____

Signature : _____ Date: _____

6.2 Sample – Statement of Patient Rights Form

HPMC OCCUPATIONAL MEDICAL SERVICES

STATEMENT OF PATIENT RIGHTS RELATING TO BERYLLIUM RESULTS

HPMC Occupational Medical Services (SOMC) has informed me that I have borderline and/or positive test result(s) from the beryllium lymphocyte proliferation test (BeLPT).

As a result of multiple borderline or positive test results from the BeLPT:

- I have the right to be protected from ongoing significant exposure to beryllium.
- If I am concerned about a risk at any time for exposure above the levels indicated in the site-wide CBDPP, I am encouraged to discuss my concern with my employer's management, safety professionals, or HPMC OMS medical providers.
- I have discussed with the physician, physician assistant or Beryllium Case Manager my right to have current industrial hygiene monitoring data provided by my employer when I am asked or required to enter posted or suspected beryllium buildings.
- I understand that as a beryllium-associated worker (current worker who is exposed through beryllium work, or has had past or potential past exposure to beryllium at a DOE facility), my employer provides the opportunity under HPMC OMS' Medical Surveillance Program for me to seek 2nd and 3rd medical opinions (Multiple Physician Review) upon my request. I understand requests for Multiple Physician Review must be made to my employer in writing within 30 days following receipt of my results.

I am aware of my right to file an application for benefits for occupational disease with the following agencies:

- State Workers' Compensation
  Workers must file for worker's compensation within 2 years from the date a physician gives them written notice of the existence of an occupational disease. Contact your company's workers' compensation office for additional information.
- Energy Employees Occupational Illness Compensation Program Act (EEOICPA)
  Workers who have had one positive BeLPT result may be eligible for medical benefits that include ongoing medical surveillance and medical treatment. Contact the EEOICPA resource center for additional information.

Employee Signature _____ Date _____

HPMC OMS Staff Signature _____ Date _____

BC-8800-741 (04/11)

Note: Before each use, check HPMC OMS intranet to ensure this copy is current.

ATTACHMENT 5: Change Summary for DOE-0342

Resolution Form #	Date Approved	Section Changed	Change Details
-	5/14/09	-	**Rev. 0 issued of DOE-0342** *Hanford Site Chronic Beryllium Disease Prevention Program (CBDPP)*
-	6/12/12	-	**Rev. 1 of CBDPP issued**; Resolution Forms below.
1-12	7/26/10-11/14/11	Various	Resolution Forms 1-12 were incorporated into Rev 1 of DOE-0342 *Hanford Site Chronic Beryllium Disease Prevention Program (CBDPP)*, issued June 12, 2012
- **13**	5/17/13 5/1/12	- Various	**Rev. 2 of CBDPP issued**: Resolution Forms below. Resolution Form 13 incorporated into Rev 2 of CBDPP. Incorporated new Intrusive Activity definition into the Definitions section
14	5/24/12	6.26.5	Resolution Form 14 incorporated into Rev 2 of CBDPP. Changed the phrase "too sick to work" in Section 6.26.5 with updated language "beryllium-affected worker's health affects his/her ability to perform normal job assignments." Updated to incorporate a best in class change driven by the Beryllium Counseling and Benefits Handbook.
15	5/24/12	6.26.2	Resolution Form 15 incorporated into Rev 2. Section 6.26.2, Temporary Removal Pending Final Medical Determination, updated to incorporate a best in class change driven by the Beryllium Counseling and Benefits Handbook. Updated language in Section 6.26.2 to reflect the option for SOMD to issue a new recommendation for another temporary medical removal, if final medical determination will take longer than 12 months to complete.
16	5/24/12	6.25	Resolution Form 16 incorporated into Rev 2, Section 6.25, Medical Surveillance, updated to incorporate a best in class change driven by the Beryllium Counseling and Benefits Handbook.
17	6/18/12	6.7, Attachment 3	Resolution Form 17 incorporated into Rev 2, Section 6.7 and Attachment 3 of DOE-0342. Establishes a more prescriptive process and new forms re: the use of a Beryllium Work Permit (BWP) through direct reference to the new DOE-0342-001 implementing procedure.

Resolution Form #	Date Approved	Section Changed	Change Details
24	3/22/13	2.0, Attachment 3	Resolution Form 24 incorporated into Rev 2 of CBDPP. Updated language in Section 2.0 Scope to reference DOE-0342-001 and removed Attachment 3: *Hanford Beryllium Work Permit* from DOE-0342. Listed DOE-0342-001, *Hanford Site Wide Beryllium Work Permit and Hazard Assessment Procedure,* in the References section.
26	9/17/12	2.0, Attachment 3	Resolution Form 26 incorporated into Rev 2 of CBDPP. Updated language in Section 2.0 Scope to reference DOE-0342-001 and remove Attachment 3, the old Beryllium Work Permit.
27	10/15/12	Various	Resolution Form 27 incorporated into Rev 2 of CBDPP. Three Areas of DOE-0342 reference to "PHMC" or "PHMC Contractor." This Resolution Form updates those sections to appropriately reference the Mission Support Contractor (MSC).
28	10/16/12	Section 3.0, Sections 6.11.4 & 6.11.5	Resolution Form 28 incorporated into Rev 2 of CBDPP. Incorporating the language developed in support of the following BeCAP products: Exposure Monitoring (WBS 1.3.2) & Periodic Surface Sampling (WBS 1.3.3).
29	10/18/12	Various	Resolution Form 29 incorporated into Rev 2 re: new SOMC and additions from Medical Evaluations product team. In addition to minor editorial changes, the following sections were added for better clarification: 2.2.2 Records Review, 2.2.3 Alternate Physician Determination and 2.2.4 Multiple Physicians Review processes. A section was rearranged due to the clarification as stated above (2.2.2 is now 2.2.6). Replaced BeMSP (Rev 10) with the new attached revised BeMSP (Rev 11) in the appropriate Appendix.
30	10/16/12	Various	Resolution Form 30 incorporated into Rev 2 of CBDPP. A new Site Occupational Medical Contractor (SOMC) replaced CSC on October 1, 2012. This requires revision to replace CSC with HPMC. Instead of issuing revisions upon every new medical contractor, all references to CSC will be replaced with SOMC.
31	9/20/12	Section 6.14	Resolution Form 31 incorporated into Rev 2 of CBDPP Incorporating the language developed in support of the Sampling of Affected Workers (WBS 1.3.4) BeCAP product.
31 Revised	3/7/13	Section 6.14	Resolution Form 31 Revised incorporated into Rev 2 of CBDPP Revision 1 addresses the proposed wording of the note in Section 6.14 and replaces Section 6.14 of the CBDPP with the new language.

Resolution Form #	Date Approved	Section Changed	Change Details
32	9/20/12	Appendix C	Resolution Form 32 incorporated into Rev 2, Appendix C incorporating language developed in support of the Sampling of Affected Workers (WBS 1.3.4) BeCAP product. Whole Appendix replaced.
33	10/30/12	Sections 6.7.2, 6.8, and 6.20.	Resolution Form 33 incorporated into Rev 2 addressing the CBDPP revisions necessary to implement the requirements identified in the BeCAP Work Control product (WBS 1.6.2). The BeCAP Work Control Product Team developed language for inclusion into the CBDPP, Sections 6.7.2, 6.8, and 6.20.
34	10/30/12	Appendix E,F,G	Resolution Form 34 incorporated into Rev 2. Inserted the following Appendices into the applicable sections of the CBDPP: Appendix E: Assessing, Documenting, and Reporting Beryllium Exposures Associated With Radioactivity; Appendix F: Requirements for Conducting Beryllium Work; Appendix G: Typical Beryllium Personal Protective Equipment "Dress/Undress" developed in support of the BeCAP Work Control product (WBS 1.6.2).
35	2/27/12	Section 6.17	Resolution Form 35 incorporated into Rev 2. Due to the new Hanford Site Beryllium Posting and Labeling Requirements Procedure, current Section 6.17, Engineering Controls is updated to reference DOE-0342-003, the posting and labeling procedure.
36	2/27/12	Section 6.23	Resolution Form 36 incorporated into Rev 2. Due to the new Hanford Site Beryllium Posting and Labeling Requirements Procedure, current Section 6.23, Waste Disposal is updated to reference DOE-0342-003.
37	12/20/12	Attachment 2	Resolution Form 37 incorporated into Rev 2. Attachment 2 is an obsolete version of the Beryllium Facility Assessment Form and therefore removed. All references to Attachment 2 in the CBDPP will be eliminated as part of the planned implementation of DOE-0342-002, *Hanford Site Assessment and Characterization/ Verification of Buildings Procedure*.
38	12/20/12	Added Appendix A	Resolution Form 38 incorporated into Rev 2 of CBDPP in Appendix A to incorporate the process developed for communicating beryllium information to the Hanford Site.
39	12/20/12	Clarification	Resolution Form 39 documents the process used for communicating information pertaining to the Beryllium Corrective Action Plan (BeCAP). This resolution form will remain in effect until the BeCAP is officially closed and the BeCAP Core Team is disbanded.

Resolution Form #	Date Approved	Section Changed	Change Details
40	2/27/12	Various	Resolution Form 40 incorporated into Rev 2 of CBDPP. Remove wording of current sections 6.15, 6.16, 6.28.1, 6.28.2, 6.29 and Attachment 5 and combined with, and modified language/heading in section 6.28 *Postings*. These changes a result of adoption of the new Postings procedure.
40 Revised	9/17/12	Various	Resolution Form 40 incorporated into Rev 2 of CBDPP. Remove wording of current sections 6.15, 6.16, 6.28.1, 6.28.2, 6.29 and Attachment 5 of the CBDPP and combine with, and modify language/heading in section 6.28 *Postings*. More language changes of a similar nature to above, #40.
41	12/19/12	Section 6.6.2	Resolution Form 41 incorporated into Rev 2 of CBDPP. Revision of the CBDPP to incorporate DOE-0342-005 *(Evaluation of Electrical Equipment for Beryllium)*
42	6/26/12	3.0, 6.6.1	Resolution Form 42 incorporated into Rev 2 of CBDPP. Revising to ensure that it is consistent with DOE-0342-004 (Assessment and Characterization/ Verification of Structures & Conex Boxes). DOE-0342-004 provides more detailed direction than is currently found in the CBDPP, Rev 1. This form addresses the CBDPP changes necessary for implementation of DOE-0342-004.
43	2/27/12	3.0 Definitions	Resolution Form 43 incorporated into Rev 2 of CBDPP. DOE-0342-002 and DOE-0342-003 provide more detailed direction than is currently found in the Rev 1 CBDPP. This form addresses the CBDPP changes necessary for implementation of DOE-0342-002 and incorporates into the CBDPP the definitions from DOE-0342-002 and DOE-0342-003. Modified the definitions for Beryllium Clean Facility, BCA and BCF in Section 3.0 as well.
44	10/19/11	6.7	The Hazard Assessment/Beryllium Work Permit product has been developed by the CAP Product Team. This form incorporates new language in 6.7 Hazard Assessment.
45	10/28/10	6.7	Per the Corrective Actions for Hanford Chronic Beryllium Disease Prevention Program I.D-F-4.3.2 Action Item: Establish a checklist for conducting pre-job briefings. The CAP Deliverable was: Development and implementation of a site-wide checklist for Be pre-jobs. Reference to BWP added here.

Resolution Form #	Date Approved	Section Changed	Change Details
46	12/2/10	6.28	Per the Corrective Actions for Hanford Chronic Beryllium Disease Prevention Program I.D – F-4.10.6 Establish procedures for the establishment, use and down-posting of BCFs and BCAs. The CAP Deliverable is: Develop site-wide criteria. Procedures for implementation of the Site-Wide criteria will be contractor specific. Text added to 6.28.
52	1/24/13	6.7, 6.7.1	Due to a number of clarifications issued pertaining to DOE-0342-001, *Hanford Site Beryllium Work Permit and Hazard Assessment Procedure*, the language in sections 6.7 and 6.7.1 of the current CBDPP needs revised. Much of the language in the CBDPP and the BWP procedure is duplicated and/or the BWP product team agreed certain language in the CBDPP needed to be incorporated into the procedure or eliminated from the CBDPP. Text added and removed.
53	1/24/13	6.28, 6.29	The Postings product team combined sections 6.28 and 6.29 of DOE-0342, eliminating section 6.29 as a result of resolution to Beryllium CAP items. It has been noticed that section 6.29 is referenced in several sections of the current CBDPP. These references need to be removed in preparation for implementation of the new Postings procedure and Rev. 2 of the CBDPP.
54	1/24/13	Appendix B	The requirements identified in Appendix B of the CBDPP were incorporated into DOE-0342-001, *Hanford Site Beryllium Work Permit and Hazard Assessment Procedure*. The requirements are now contained in Site Form A6005-852, *Hanford Beryllium Hazard Assessment Form;* therefore, the Appendix is no longer needed in the CBDPP.
55	1/24/13	Attachments 6 & 7, 6.30	Attachments 6 and 7 requirements have been incorporated into the DOE-0342 and are no longer needed as reference documents. These references need to be removed in preparation for implementation of Rev.2 of the CBDPP. Change to wording re: recordkeeping in 6.30.
56	1/31/13	1.0, 2.0, 4.0, 5.0, 6.1, 6.3,	With the changes from BeCAP products, some general changes are needed to a number of the sections at the front of the CBDPP. These minor changes will establish consistency and begin to pull the Program together as a whole.

Resolution Form #	Date Approved	Section Changed	Change Details
57	2/13/13	3.0 Definitions	With the changes being incorporated from BeCAP products, some general changes are needed to a number of the sections at the front of the CBDPP. These minor changes will establish consistency and begin to pull the Program together as a whole.
58	2/13/13	6.25, 6.26.5	Additional clarity will be added to section 6.25 to support medical surveillance and its associated travel by adding sections 6.25.1. This wording will help define medical surveillance and its associated travel, what an employee is responsible for, and what expenses are allowable and reimbursable for the employer. The last paragraph of section 6.26.5 will be replaced to remove restrictions on participation in medical surveillance.
59	2/13/13	6.27	Modify language and heading in section 6.27, Training and Counseling, of DOE-0342, rev 1 and add a new section 6.27.3, Distribution of Information. The current requirement for distribution of the Beryllium Information Booklet only requires the booklet be distributed to employees receiving medical testing. As a best-in-class requirement to provide information on beryllium to employees, the Medical Evaluations Team has decided to require the booklet be available to all employees.
60	2/20/13	Clarification	Per the Handbook BeCAP team, three resolution forms were submitted under the old resolution format which did not make clear their applicability to becoming effective. Discussions among the BeCAP and CBDPP Committees have indicated an additional resolution form is needed to make the clarification of when these resolution forms become effective. The Product Team has agreed to implement the product immediately. Resolution forms 0342-14, 0342-15, 0342-16 content made effective immediately upon approval of this resolution.
61	2/20/13	Clarification	Per the Handbook BeCAP team, this resolution form was submitted under the old resolution format which did not make clear their applicability to becoming effective. Resolution form 0342-51 changes shall become effective upon successful completion of the training pilot
62	2/20/13	Appendix D	Adopt new explanation for use of resolution forms, as a clarification to Appendix D, affecting supporting documentation through the BeCAP and continuing through the CBDPP Committee maintenance phase.

Resolution Form #	Date Approved	Section Changed	Change Details
63	2/20/13	6.20	Section 6.20 of the CBDPP contains a statement on the documentation of donning and doffing of PPE that contradicts the BWP procedure (Rev 1). This statement indicates any special guidance for the donning and doffing of PPE will be documented on the BWP and needs removed from section 6.20 to be consistent with the requirements of the procedure.
64	3/5/13	6.25	In the second paragraph of Section 6.25 of the CBDPP, SOMD is used instead of SOMC. There is a concern that some workers may be under the false belief that the SOMD reviews each EJTA. The CBDPP uses the terms as they are used in 10 CFR 850. It is the SOMC's understanding that it can be the SOMD or "Designee" and it was added.
65	3/5/13	6.27.1	It was noticed that Section 6.27.1, Training, contained language inconsistent with the new training requirements and courses. An update was needed for consistency.
66	3/5/13	6.22.1	During development of the Postings Product, the team members developed language dealing with the removal of material/items from a BCA/BRA. It was decided by the team that this language did not belong in the actual Procedure, but should be included in the CBDPP.
67	3/7/13	6.22, 6.22.1.1	During development of the Postings Product, the team members developed language dealing with the removal of material/items from a BCA/BRA to be incorporated into the CBDPP. Current language in Section 6.22, Release Criteria had a resolution form rewriting the section, but issues arose and the changes were not approved. Without the unapproved changes to section 6.22, language needs to be removed in order to be consistent with the changes made by the Postings Product Team.
68	3/7/13	Section 5.0, Appendix B	Former workers have information of the past Hanford activities on the Hanford Site that may not be available from other sources. Formalizing a process for soliciting information from former workers will increase the amount of information available for Beryllium Facility Assessments and Beryllium Hazard Assessments. Add to the end of the CBDPP Committee responsibilities in Section 5.0. Added Appendix B.
-	9/19/13	-	**Rev. 2A of CBDPP issued.**
84	9/19/13	1.0, Purpose	Replaced paragraph two and added one sentence to Section 1.0, Purpose, per the direction in DOE directive letter 13-NSD-0035_RL.
41	9/19/13	6.6.2	Resolution Form 41 language inserted here; inadvertently omitted from Rev 2 of this document.